

TABLES

TABLE 2-1
LOCATION OF TTNUS MONITORING STATIONS
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Location
1	Halls Brook, upstream of discharge into Halls Brook Holding Area (HBHA)
2	HBHA, outlet of north pond (downstream gradient of Industri-Plex Site)
3	Aberjona River (AR) prior to discharge control structure at Mishawum Road
4	HBHA outlet at Mishawum Road
5	AR at Salem Street bridge, downstream of Wells G&H Site and 38-acre wetlands (Woburn)
6	AR downstream of Montvale Avenue, adjacent to Citizens Bank and McDonalds (Woburn)
7	AR at Swanton Street bridge (Winchester)
8	AR at USGS gaging station, Mystic Valley Parkway (Winchester)
9	Upper Mystic Lake outlet, Medford Boat Club (Arlington)
10	Lower Mystic Lake outlet, High Street (Rt. 60) bridge (Medford)
11	Outlet of Mill Brook into the Lower Mystic Lake (Arlington)

TABLE 2-2
AVERAGE MONTHLY STREAMFLOW AS RECORDED AT
THE USGS STATION AND EACH OF THE 8 TTNUS MONITORING
STATIONS FOR THE ABERJONA RIVER
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Date	Station 1 ^b (cfs)	Station 2 (cfs)	Station 3 (cfs)	Station 4 (cfs)	Station 5 (cfs)	Station 6 (cfs)	Station 7 (cfs)	Station 8 (cfs)	USGS (cfs)
Jun-01	NA ^a	NA	3.22	3.54	NA	NA	23.31	42.88	44.23
Jul-01	NA	NA	1.26	2.07	5.26	NA	20.06	39.32	42.74
Aug-01	2.15	NA	2.14	2.41	7.41	NA	9.17	NA	6.36
Sep-01	0.99	0.93	0.84	NA	NA	NA	5.4	7.96	6.55
Oct-01	0.99	1.00	0.94	1.30	3.14	3.72	6.54	5.94	4.38
Nov-01	0.82	0.84	1.37	1.01	2.76	3.49	6.9	4.78	3.58
Dec-01	1.72	3.14	3.02	2.38	6.31	7.46	7.82	13.41	10.83
Jan-02	1.87	5.82	4.04	2.42	5.58	7.56	8.19	14.34	11.58
Feb-02	2.71	8.22	5.07	3.04	7.3	10.7	10.97	33.15	15.69
Mar-02	4.09	7.59	6.34	4.14	12.38	13.52	22.73	40.48	30.32
Apr-02	4.16	7.24	6.85	4.12	9.42	15.41	27.25	44.29	35.19
May-02	5.51	9.63	8.57	4.90	14.99	21.28	34.66	61.38	53.15
Jun-02	3.38	4.41	5.29	4.18	6.23	12.25	21.21	43.39	34.06
Jul-02	1.23	1.05	1.08	2.40	3.05	1.02	7.3	11.55	9.55
Aug-02	1.03	0.70	0.85	1.65	2.57	0.72	5.72	7.38	6.1
Sep-02	1.25	NA	1.17	2.33	2.53	1.45	6.14	11.85	9.78
Max	5.51	9.63	8.57	4.90	14.99	21.28	34.66	61.38	53.15
Min	0.82	0.70	0.84	1.01	2.53	0.72	5.40	4.78	3.58
Avg	2.28	4.21	3.25	2.79	6.35	8.22	13.96	25.47	20.26

Notes: ^a Not Available

^b Period of Record May Differ Between Stations.

TABLE 2-3
AVERAGE TOTAL METALS AND TSS CONCENTRATIONS DURING BASEFLOW
AND STORM FLOW CONDITIONS FOR STATIONS 1 THROUGH 10
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	TSS (mg/L)		Total As ($\mu\text{g}/\text{L}$)		Total Fe ($\mu\text{g}/\text{L}$)		Total Cr ($\mu\text{g}/\text{L}$)		Total Cu ($\mu\text{g}/\text{L}$)		Total Pb ($\mu\text{g}/\text{L}$)		Total Hg ($\mu\text{g}/\text{L}$)	
	Baseflow	Storm Flow	Baseflow	Storm Flow	Baseflow	Storm Flow	Baseflow	Storm Flow	Baseflow	Storm Flow	Baseflow	Storm Flow	Baseflow	Storm Flow
1	4.4	21.6	1.8	3.5	868	1830	1.8	9.5	3.4	17	2.31	13	0.05	0.05
2	4.8	12.6	20.2	48	1933	3910	1.7	3.1	6.0	7.8	1.72	3.5	0.05	0.05
3	4.7	8.1	19.2	15	2404	1880	1.3	3.0	2.6	6.1	1.03	2.7	0.05	0.05
4	22.5	12.7	37.1	32	5266	2870	11.5	4.1	17.4	8.3	7.87	3.3	0.09	0.07
5	6.0	6.8	20.1	15	2448	1630	7.2	6.8	5.1	7.0	3.35	3.6	0.06	0.06
6	4.6	17.1	11.1	20	1463	2520	4.2	15	4.6	31	3.24	9.2	0.06	0.08
7	7.4	10.3	5.7	9.5	1127	1450	3.1	5.6	4.5	15	2.73	7.1	0.05	0.05
8	4.5	46.1	4.4	11	1031	2800	2.2	15	5.1	26	3.64	23.6	0.06	0.10
9	4.1	3.8	1.8	2.3	132	130	0.5	0.4	2.6	2.3	0.82	0.9	0.05	0.05
10	6.1	3.8	1.4	1.6	183	54	1.0	0.9	2.2	1.8	0.95	0.6	0.07	0.05

Note: Concentrations Set at $\frac{1}{2}$ Detection Limit for Samples Measuring Below Detection

TABLE 2-4
TOTAL METAL FLUXES DURING BASEFLOW AND STORM FLOW CONDITIONS FOR STATIONS 1 THROUGH 8
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Flow (cfs)		TSS (kg/hr)		As (g/hr)		Fe (g/hr)		Cr (g/hr)		Cu (g/hr)		Pb (g/hr)	
	Baseflow	Storm Flow	Baseflow	Storm Flow	Baseflow	Storm Flow	Baseflow	Storm Flow	Baseflow	Storm Flow	Baseflow	Storm Flow	Baseflow	Storm Flow
1	0.9	8.9	0.5	20.8	0.2	3.2	83	1,700	0.2	9.4	0.4	15.0	0.2	12.0
2	2.4	13.0	1.1	16.4	3.8	67.9	440	4,930	0.4	3.2	1.6	9.5	0.5	4.9
3	2.0	10.4	0.6	6.2	2.7	15.3	410	2,060	0.2	3.7	0.7	7.6	0.3	3.2
4	1.9	6.7	3.2	8.3	6.7	23.7	970	2,020	2.1	2.8	3.3	5.4	1.5	2.1
5	2.8	25.6	1.6	22.2	5.3	44.8	660	4,860	1.9	19.1	1.5	19.8	0.9	9.5
6	4.1	27.0	2.1	50.7	4.1	58.6	580	7,330	1.6	42.5	2.1	94.7	1.3	27.0
7	7.3	49.2	3.9	60.7	4.4	60.0	830	8,510	2.1	34.9	3.8	91.6	1.8	43.9
8	13.6	76.3	6.7	468.1	5.5	106.8	1,380	29,700	2.8	177.3	9.4	281.5	4.1	262.2

Note: Flux was computed for samples where both concentrations and flows were measured. Samples measured below quantification limits were set at $\frac{1}{2}$ quantification limit values. The flow measurements listed correspond to flow measurements for which metals samples were collected and analyzed and may not correspond to the flow measurements corresponding to when samples for when TSS were analyzed.

TABLE 3-1
SUB-BASIN AND MODULE SUMMARY
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Modules	Sub-Basins	Individual Area (km²)	Individual Area (mi²)	Total Module Area (mi²)	Cumulative Area to Station (mi²)
1	1C	1.38	0.53	2.56	2.56
	2	2.14	0.82		
	3	3.11	1.20		
2	1B	1.17	0.45	0.45	3.01
3	1A	6.92	2.67	2.67	2.67
4	1D	0.44	0.17	0.17	3.18
5	1E	0.12	0.05	1.51	7.36
	5	3.78	1.46		
6	4	4.14	1.60	2.03	9.39
	7	1.12	0.43		
7	6	5.40	2.08	4.48	13.87
	9	2.19	0.85		
	11	4.01	1.55		
8	12	1.15	0.44	0.95	24.20
	13B	0.86	0.33		
	15	0.44	0.17		
Woburn West	8	7.68	2.97	9.39	Not Applicable
	10	7.31	2.82		
	13A	2.41	0.93		
	14	6.91	2.67		
Sum				24.20	

TABLE 3-2
CHANNEL SUMMARY
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Channel ID	Begin Gaging Station	End Gaging Station	Length (km)	Length (mi)
A	1	2	0.29	0.18
B	2	4	0.93	0.58
C	4	5	1.57	0.98
D	5	6	1.78	1.11
E	6	7	2.95	1.83
F	7	8	1.66	1.03
SUM			9.18	5.70

TABLE 3-3
COMPARISON OF GROUNDWATER WITHDRAWAL RATES BETWEEN
MIT AND TTNUS MONITORING PERIODS
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Groundwater Withdrawal	MIT Monitoring Period (1991-1993)	TtNUS Monitoring Period (2001-2002)
City of Woburn	4.5 mgd	3.7 mgd
Town of Burlington	0.1 mgd	0 mgd
Atlantic Gelatin	1.8 mgd	1 mgd

TABLE 4-1
SUBROUTINES USED IN MODEL CODE
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Subroutine Name	Description	New ^a
concen	This subroutine computes the concentration given flow and mass of ss or mass of metals.	Yes
compo	This subroutine computes the statistics for composite samples. Statistics include mean of modeled values for corresponding composite samples. Mean of the composite samples and R ² values between measured and modeled "composites".	Yes
cum	This subroutine sums up variables over simulation period.	Yes
dmconcw	This subroutine computes the dissolved metals concentration given the mass of metals and flow and writes the output to a file.	Yes
fid	This subroutine determines rising versus falling limbs of the streamflow hydrograph.	No
flowui	This subroutine computes flow using the unit hydrograph method.	No
fndata	This subroutine reads the measured flow data corresponding to each gaging station.	No
lday	This function computes the last day of the month given the month and year.	No
meltflow	This subroutine computes flow using the unit hydrograph method.	No
meltid	This subroutine identifies individual snowmelt events and computes the effective snowmelt.	No
meltwater	This subroutine computes snowmelt depth using a degree-hour method. Melt (i) and snow (i) are in 'equivalent rain inches.'	No
met	This subroutine computes the metal fluxes associated with each Flow and Sediment Components. Used to model Metals from Woburn-North, Woburn-Central and Winchester Sub-basins.	Yes
metwr	This subroutine writes the sum of metal fluxes to the "balance" output file.	Yes
pmconc	This subroutine computes particulate metal concentrations given flow, sediment mass, and metal mass. The particulate conc. are given in units of mass per unit volume and mass per unit mass of sediment.	Yes
priorr	This subroutine computes the sum of the prior rainfall and meltwater for x hour prior to time i.	No
rdrain	This subroutine reads the precipitation and temperature data and distinguishes between rain and snow.	No
readbf	This subroutine reads the parameters required for the baseflow computation.	No
rt1	This subroutine routes streamflow, sediment, and metal fluxes using the Muskingum Routing Method.	No
ss	This subroutine computes suspended sediment mass & concentration.	No

TABLE 4-1 (cont.)
SUBROUTINES USED IN MODEL CODE
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS
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Subroutine Name	Description	New^a
ssag	This subroutine adjusts the sediment flux through TT Station 7 due to the well pumping at Atlantic Gelatin.	No
ssdc	This subroutine checks for sediment deposition/erosion at the end of each channel.	No
ssdcm	This subroutine checks for metal deposition/erosion at the end of each channel.	Yes
ssdcwr	This subroutine writes the summary data to the balance file for deposition/erosion at the end of each channel.	Yes
stormid	This subroutine identifies individual storms and computes the effective rainfall.	No
sum2	This subroutine adds up the flow, sediment, and metals.	Yes
sum2w	This subroutine adds up the two variables after the fil and writes the output to a file.	Yes
sum3	This subroutine adds up the 3 values after the n1.	Yes
sum3w	This subroutine adds up the different components of flow and writes it to an output file.	Yes
sumdata	This subroutine sums up the relevant flow data corresponding to each gaging station.	Yes
wess	This subroutine computes SS and Metal Fluxes at Wedge Pond. Two components of SS, an organic and inorganic, are assumed. The organic portion is modeled by modeling Wedge Pond as a large continuous flow stirred tank reactor for "growth of organic SS" (constant reactor volume). A constant concentration of each metal is assumed for streamflow and suspended sediment.	No
wn	This subroutine produces a flow hydrograph for a sub-basin using a Unit Hydrograph Technique. Used to model flow from Modules 1 through 8.	No
wqstat	This subroutine computes the statistics for water quality parameters and writes it to a file called wqbalance.	Yes
wr	This subroutine writes the computed vs. modeled flow data to files called out.check and out.che.	Yes
writflow	This subroutine writes flow to a file.	Yes
wrmetc	This subroutine writes a summary of the metals conc. data to an output file.	Yes
wrmefl	This subroutine writes a summary of the metals flux data to an output file.	Yes
ww	This subroutine inputs the flow for the Woburn West Module. The hourly flows are interpolated from the monthly means.	No

Note: ^a Written as a new subroutine

TABLE 4-2
LIST OF INPUT FILES USED BY THE MODEL
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

File Number in Source Code	Filename	F or C^a	Description
4	temp.01	F	Air temperature data file for TtNUS period of record
11	ss1.par	C	Parameter file for suspended sediments, module 1
12	ss2.par	C	Parameter file for suspended sediments, module 2
13	ss3.par	C	Parameter file for suspended sediments, module 3
14	ss4.par	C	Parameter file for suspended sediments, module 4
15	ss5.par	C	Parameter file for suspended sediments, module 5
16	ss6.par	C	Parameter file for suspended sediments, module 6
17	ss7.par	C	Parameter file for suspended sediments, module 7
18	ss8.par	C	Parameter file for suspended sediments, module 8
19	ssr4.par	C	Parameter file for suspended sediments at Station 4 after water removal
20	ssag.par	C	Parameter file for suspended sediments, atlantic gelatin area
21	ssAp.par	C	Parameter file for suspended sediments, channel A
22	ssBp.par	C	Parameter file for suspended sediments, channel B
23	ssCp.par	C	Parameter file for suspended sediments, channel C
24	ssDp.par	C	Parameter file for suspended sediments, channel D
25	ssEp.par	C	Parameter file for suspended sediments, channel E
26	ssFp.par	C	Parameter file for suspended sediments, channel F
111	me1_BD.txt	F	SS and metals grab sample data, Station 1
112	me2_BD.txt	F	SS and metals grab sample data, Station 2
113	me3_BD.txt	F	SS and metals grab sample data, Station 3
114	me4_BD.txt	F	SS and metals grab sample data, Station 4
115	me5_BD.txt	F	SS and metals grab sample data, Station 5
116	me6_BD.txt	F	SS and metals grab sample data, Station 6
117	me7_BD.txt	F	SS and metals grab sample data, Station 7
118	me8_BD.txt	F	SS and metals grab sample data, Station 8
121	me1comp_BD.txt	F	Composite data for SS and Metals for Station 1
122	me2comp_BD.txt	F	Composite data for SS and Metals for Station 2
123	me3comp_BD.txt	F	Composite data for SS and Metals for Station 3
125	me5comp_BD.txt	F	Composite data for SS and Metals for Station 5
126	me6comp_BD.txt	F	Composite data for SS and Metals for Station 6
127	me7comp_BD.txt	F	Composite data for SS and Metals for Station 7
201	rain1.txt	F	Measured Rain at TT Station 1
202	rain2.txt	F	Measured Rain at TT Station 2
203	rain3.txt	F	Measured Rain at TT Station 3

TABLE 4-2 (cont.)

LIST OF INPUT FILES USED BY THE MODEL
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS
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File Number in Source Code	Filename	F or C^a	Description
204	rain4.txt	F	Measured Rain at TT Station 4
205	rain5.txt	F	Measured Rain at TT Station 5
206	rain6.txt	F	Measured Rain at TT Station 6
207	rain7.txt	F	Measured Rain at TT Station 7
208	rain8.txt	F	Measured Rain at TT Station 8
211	ui.m1	F, C	Flow Parameter File for Sub-basin(s) Directly Contributing to TT 1
212	ui.m2	F, C	Flow Parameter File for Sub-basin(s) Directly Contributing to TT 2
213	ui.m3	F, C	Flow Parameter File for Sub-basin(s) Directly Contributing to TT 3
214	ui.m4	F, C	Flow Parameter File for Sub-basin(s) Directly Contributing to TT 4
215	ui.m5	F, C	Flow Parameter File for Sub-basin(s) Directly Contributing to TT 5
216	ui.m6	F, C	Flow Parameter File for Sub-basin(s) Directly Contributing to TT 6
217	ui.m7	F, C	Flow Parameter File for Sub-basin(s) Directly Contributing to TT 7
218	ui.m8	F, C	Flow Parameter File for Sub-basin(s) Directly Contributing to TT 8
219	ui.r4	C	Parameters for Water Removal at Station #4
241	metals.m1	C	Metals Parameter File for Area Contributing Directly to TT 1
242	metals.m2	C	Metals Parameter File for Area Contributing Directly to TT 2
243	metals.m3	C	Metals Parameter File for Area Contributing Directly to TT 3
244	metals.m4	C	Metals Parameter File for Area Contributing Directly to TT 4
245	metals.m5	C	Metals Parameter File for Area Contributing Directly to TT 5
246	metals.m6	C	Metals Parameter File for Area Contributing Directly to TT 6
247	metals.m7	C	Metals Parameter File for Area Contributing Directly to TT 7
248	metals.m8	C	Metals Parameter File for Area Contributing Directly to TT 8
249	metals.ww	C	Metals Parameter File for Area Contributing Directly to Woburn West
251	Flow1.01	F	Measured flow at TT station 1
252	Flow2.01	F	Measured flow at TT station 2
253	Flow3.01	F	Measured flow at TT station 3
254	Flow4.01	F	Measured flow at TT station 4
255	Flow5.01	F	Measured flow at TT station 5
256	Flow6.01	F	Measured flow at TT station 6
257	Flow7.01	F	Measured flow at TT station 7
258	Flow8.01	F	Measured flow at TT station 8
259	flusgs.txt	F	Measured flow at USGS gage
260	flowww.txt	F	Dummy file with all -999 for flow from woburn west
1002	bf_new.ave	F	Parameter File for Baseflow Computations

Note: ^aContains fixed (F) or calibration (C) input data

TABLE 4-3
CALIBRATION PARAMETERS USED TO SIMULATE FLOW AND
SUSPENDED SEDIMENT TRANSPORT
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Calibration Parameter	Description
FLOW COMPUTATIONS	
Calibration Parameters Set for Each Module (Module 1 through 8)	
IAQ	Initial abstraction for quick effective rainfall
IAS	Initial abstraction for slow effective rainfall
IAM	Initial abstraction for effective melt water
KQ	Fraction of rainfall converted to quick effective rainfall after removal of the initial abstraction, IAQ
KS	Fraction of rainfall converted to slow effective rainfall after removal of initial abstraction, IAS
KM	Fraction of snow melt that is converted to melt flow after removal of initial abstraction, IAM
maxl	Water level at which the maximum water withdrawal occurs at Station #4
LL2	Proportionality factor for water withdrawal at Station #4
datum	Reference depth, in feet above the invert of the circular outlet structure at Station #4
SUSPENDED SEDIMENT COMPUTATIONS	
Calibration Parameters Set for Each Module (Module 1 through 8). Parameters "f", "bfpot", and "Cs" also used for Suspended Sediment Computations from Main Channels (Channels A through F) and at the water withdrawal points (Atlantic Gelatin and Station #4).	
f	Fraction of channel sediment from flows at time=0
bfpot	Potential SS concentration associated with flows & Itbf, mg/L
Cs	Proportionality factor for erosion from channel
thresq	Flow threshold for erosion
maxlq	Input deposition rate, grams per hour per square mile
k	Input loss rate coefficient per hour
Cq	Proportionality factor for flowq erosion from quick areas
thresr	Rain threshold for erosion
frac	Fraction of quick area accessible by rainfall
Cr	Proportionality factor for rain associated erosion from quick areas

TABLE 4-4
CALIBRATION PARAMETERS USED TO COMPUTE METALS TRANSPORT
IN THE DISSOLVED AND PARTICULATE PHASES
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Calibration Parameter	Description	Calibration Parameter	Description
METALS COMPUTATIONS			
Calibration Parameters Set for Each Module (Module 1 through 8)			
Fedq	Quick Dissolved Iron,mg/l	Cudq	Quick Dissolved Cu, µg/L
Feds	Slow Dissolved Iron,mg/l	Cuds	Slow Dissolved Cu, µg/L
Fedb	Long term Baseflow Dissolved Iron,mg/l	Cudb	Long term Baseflow Dissolved Cu, µg/L
Fepq	Quick Particulate Iron, %	Cupq	Quick Particulate Cu, mg/kg
Feps	Slow Particulate Iron, %	Cups	Slow Particulate Cu, mg/kg
Fepb	Long term Baseflow Particulate Iron, %	Cupb	Long term Baseflow Particulate Cu, mg/kg
Asdq	Quick Dissolved As, µg/L	Pbdq	Quick Dissolved Pb, µg/L
Asds	Slow Dissolved As, µg/L	Pbds	Slow Dissolved Pb, µg/L
Asdb	Long term Baseflow Dissolved As, µg/L	Pbdb	Long term Baseflow Dissolved Pb, µg/L
Aspq	Quick Particulate As, mg/kg	Pbpq	Quick Particulate Pb, mg/kg
Asps	Slow Particulate As, mg/kg	Pbps	Slow Particulate Pb, mg/kg
Aspb	Long term Baseflow Particulate As, mg/kg	Ppbp	Long term Baseflow Particulate Pb, mg/kg
Crdq	Quick Dissolved Cr, µg/L	Hgdq	Quick Dissolved Hg, µg/L
Crds	Slow Dissolved Cr, µg/L	Hgds	Slow Dissolved Hg, µg/L
Crdb	Long term Baseflow Dissolved Cr, µg/L	Hgdb	Long term Baseflow Dissolved Hg, µg/L
Crpq	Quick Particulate Cr, mg/kg	Hgpq	Quick Particulate Hg, mg/kg
Crps	Slow Particulate Cr, mg/kg	Hgps	Slow Particulate Hg, mg/kg
Crpb	Long term Baseflow Particulate Cr, mg/kg	Hgpb	Long term Baseflow Particulate Hg, mg/kg
METALS COMPUTATIONS			
Calibration Parameters for Woburn West Sub-basin Only			
Fed	Dissolved Fe,mg/l	Cud	Dissolved Cu, µg/L
Fep	Particulate Fe, %	Cup	Particulate Cu, mg/kg
Asd	Dissolved As, µg/L	Pbd	Dissolved Pb, µg/L
Asp	Particulate As, mg/kg	Pbp	Particulate Pb, mg/kg
Crd	Dissolved Cr, µg/L	Hgd	Dissolved Hg, µg/L
Crp	Particulate Cr, mg/kg	Hgp	Particulate Hg, mg/kg

TABLE 4-5
OUTPUT FILES
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

File No. in Source Code	Filename	Description
2	storms	Output file that summarizes all of the major storms for model period
5	out.check	Compares modeled to measured flows for all stations
30	out.che	Same as out.check but without first two lines of text removed, needed for import into Matlab
40	mirror.txt	A file that summarizes the calibration input for each module.
60	balance	Output file with mass balance Information (flow and ss) for entire run period
71	wqbalance	Modeled versus measured data for water quality parameters
81	mo1.txt	Grab sample measured and modeled data for use in Matlab, station 1
82	mo2.txt	Grab sample measured and modeled data for use in Matlab, station 2
83	mo3.txt	Grab sample measured and modeled data for use in Matlab, station 3
84	mo4.txt	Grab sample measured and modeled data for use in Matlab, station 4
85	mo5.txt	Grab sample measured and modeled data for use in Matlab, station 5
86	mo6.txt	Grab sample measured and modeled data for use in Matlab, station 6
87	mo7.txt	Grab sample measured and modeled data for use in Matlab, station 7
88	mo8.txt	Grab sample measured and modeled data for use in Matlab, station 8
91	mo1comp.txt	Composite measured and modeled data for use in Matlab, station 1
92	mo2comp.txt	Composite measured and modeled data for use in Matlab, station 2
93	mo3comp.txt	Composite measured and modeled data for use in Matlab, station 3
95	mo5comp.txt	Composite measured and modeled data for use in Matlab, station 5
96	mo6comp.txt	Composite measured and modeled data for use in Matlab, station 6
97	mo7comp.txt	Composite measured and modeled data for use in Matlab, station 7
101	ma1comp.txt	Composite measured and modeled data for use in Matlab - averaged over a storm, station 1
102	ma2comp.txt	Composite measured and modeled data for use in Matlab - averaged over a storm, station 2
103	ma3comp.txt	Composite measured and modeled data for use in Matlab - averaged over a storm, station 3
105	ma5comp.txt	Composite measured and modeled data for use in Matlab - averaged over a storm, station 5
106	ma6comp.txt	composite measured and modeled data for use in Matlab - averaged over a storm, station 6
107	ma7comp.txt	Composite measured and modeled data for use in Matlab - averaged over a storm, station 7
221	ss.m1	Suspended sediments at TT 1
222	ss.m2	Suspended sediments at TT 2
223	ss.m3	Suspended sediments at TT 3
224	ss.m4	Suspended sediments at TT 4
225	ss.m5	Suspended sediments at TT 5
226	ss.m6	Suspended sediments at TT 6
227	ss.m7	Suspended sediments at TT 7
228	ss.m8	Suspended sediments at TT 8
229	ss.ww	Suspended sediments at Outlet to Wedge Pond
230	ssa.ag	Suspended sediments at Atlantic Gelatin

TABLE 4-5 (cont.)**OUTPUT FILES****DRAFT TECHNICAL MEMORANDUM****INDUSTRI-PLEX SITE****WOBURN, MASSACHUSETTS****PAGE 2 OF 7**

File No. in Source Code	Filename	Description
231	ssA.cA	Suspended sediments at end of Channel A
232	ssB.cB	Suspended sediments at end of Channel B
233	ssC.cC	Suspended sediments at end of Channel C
234	ssD.cD	Suspended sediments at end of Channel D
235	ssE.cE	Suspended sediments at end of Channel E
236	ssF.cF	Suspended sediments at end of Channel F
237	ssa.r4	Suspended sediments at water withdrawal point at Station #4
261	Fep.m1	Particulate Iron at TT 1
262	Fep.m2	Particulate Iron at TT 2
263	Fep.m3	Particulate Iron at TT 3
264	Fep.m4	Particulate Iron at TT 4
265	Fep.m5	Particulate Iron at TT 5
266	Fep.m6	Particulate Iron at TT 6
267	Fep.m7	Particulate Iron at TT 7
268	Fep.m8	Particulate Iron at TT 8
269	Fep.ww	Particulate Iron at Woburn West outlet
270	Fepa.ag	Particulate Iron at Atlantic Gelatin
271	FepA.cA	Particulate Iron at the end of Channel A
272	FepB.cB	Particulate Iron at the end of Channel B
273	FepC.cC	Particulate Iron at the end of Channel C
274	FepD.cD	Particulate Iron at the end of Channel D
275	FepE.cE	Particulate Iron at the end of Channel E
276	FepF.cF	Particulate Iron at the end of Channel F
277	Fep.r4	Particulate Iron after water removal at Station #4
281	Asp.m1	Particulate Arsenic at TT 1
282	Asp.m2	Particulate Arsenic at TT 2
283	Asp.m3	Particulate Arsenic at TT 3
284	Asp.m4	Particulate Arsenic at TT 4
285	Asp.m5	Particulate Arsenic at TT 5
286	Asp.m6	Particulate Arsenic at TT 6
287	Asp.m7	Particulate Arsenic at TT 7
288	Asp.m8	Particulate Arsenic at TT 8
289	Asp.ww	Particulate Arsenic at Woburn West outlet
290	Aspa.ag	Particulate Arsenic at Atlantic Gelatin
291	AspA.cA	Particulate Arsenic at the end of Channel A
292	AspB.cB	Particulate Arsenic at the end of Channel B
293	AspC.cC	Particulate Arsenic at the end of Channel C
294	AspD.cD	Particulate Arsenic at the end of Channel D
295	AspE.cE	Particulate Arsenic at the end of Channel E
296	AspF.cF	Particulate Arsenic at the end of Channel F
297	Asp.r4	Particulate Arsenic after sediment removal at Station #4

TABLE 4-5 (cont.)**OUTPUT FILES****DRAFT TECHNICAL MEMORANDUM****INDUSTRI-PLEX SITE****WOBURN, MASSACHUSETTS****PAGE 3 OF 7**

File No. in Source Code	Filename	Description
301	Crp.m1	Particulate Chromium at TT 1
302	Crp.m2	Particulate Chromium at TT 2
303	Crp.m3	Particulate Chromium at TT 3
304	Crp.m4	Particulate Chromium at TT 4
305	Crp.m5	Particulate Chromium at TT 5
306	Crp.m6	Particulate Chromium at TT 6
307	Crp.m7	Particulate Chromium at TT 7
308	Crp.m8	Particulate Chromium at TT 8
309	Crp.ww	Particulate Chromium at Woburn West outlet
310	Crpa.ag	Particulate Chromium at Atlantic Gelatin
311	CrpA.cA	Particulate Chromium at the end of Channel A
312	CrpB.cB	Particulate Chromium at the end of Channel B
313	CrpC.cC	Particulate Chromium at the end of Channel C
314	CrpD.cD	Particulate Chromium at the end of Channel D
315	CrpE.cE	Particulate Chromium at the end of Channel E
316	CrpF.cF	Particulate Chromium at the end of Channel F
317	Crp.r4	Particulate Chromium after sediment removal at Station #4
321	Cup.m1	Particulate Copper at TT 1
322	Cup.m2	Particulate Copper at TT 2
323	Cup.m3	Particulate Copper at TT 3
324	Cup.m4	Particulate Copper at TT 4
325	Cup.m5	Particulate Copper at TT 5
326	Cup.m6	Particulate Copper at TT 6
327	Cup.m7	Particulate Copper at TT 7
328	Cup.m8	Particulate Copper at TT 8
329	Cup.ww	Particulate Copper at Woburn West outlet
330	Cupa.ag	Particulate Copper at Atlantic Gelatin
331	CupA.cA	Particulate Copper at the end of Channel A
332	CupB.cB	Particulate Copper at the end of Channel B
333	CupC.cC	Particulate Copper at the end of Channel C
334	CupD.cD	Particulate Copper at the end of Channel D
335	CupE.cE	Particulate Copper at the end of Channel E
336	CupF.cF	Particulate Copper at the end of Channel F
337	Cup.r4	Particulate Copper after sediment removal at Station #4
341	Pbp.m1	Particulate Lead at TT 1
342	Pbp.m2	Particulate Lead at TT 2
343	Pbp.m3	Particulate Lead at TT 3
344	Pbp.m4	Particulate Lead at TT 4
345	Pbp.m5	Particulate Lead at TT 5
346	Pbp.m6	Particulate Lead at TT 6
347	Pbp.m7	Particulate Lead at TT 7

TABLE 4-5 (cont.)**OUTPUT FILES****DRAFT TECHNICAL MEMORANDUM****INDUSTRI-PLEX SITE****WOBURN, MASSACHUSETTS****PAGE 4 OF 7**

File No. in Source Code	Filename	Description
348	Pbp.m8	Particulate Lead at TT 8
349	Pbp.ww	Particulate Lead at Woburn West outlet
350	Pbpa.ag	Particulate Lead at Atlantic Gelatin
351	PbpA.cA	Particulate Lead at the end of Channel A
352	PbpB.cB	Particulate Lead at the end of Channel B
353	PbpC.cC	Particulate Lead at the end of Channel C
354	PbpD.cD	Particulate Lead at the end of Channel D
355	PbpE.cE	Particulate Lead at the end of Channel E
356	PbpF.cF	Particulate Lead at the end of Channel F
357	Pbp.r4	Particulate Lead after sediment removal at Station #4
361	Hgp.m1	Particulate Mercury at TT 1
362	Hgp.m2	Particulate Mercury at TT 2
363	Hgp.m3	Particulate Mercury at TT 3
364	Hgp.m4	Particulate Mercury at TT 4
365	Hgp.m5	Particulate Mercury at TT 5
366	Hgp.m6	Particulate Mercury at TT 6
367	Hgp.m7	Particulate Mercury at TT 7
368	Hgp.m8	Particulate Mercury at TT 8
369	Hgp.ww	Particulate Mercury at Woburn West outlet
370	Hgpa.ag	Particulate Mercury at Atlantic Gelatin
371	HgpA.cA	Particulate Mercury at the end of Channel A
372	HgpB.cB	Particulate Mercury at the end of Channel B
373	HgpC.cC	Particulate Mercury at the end of Channel C
374	HgpD.cD	Particulate Mercury at the end of Channel D
375	HgpE.cE	Particulate Mercury at the end of Channel E
376	HgpF.cF	Particulate Mercury at the end of Channel F
377	Hgp.r4	Particulate Mercury after sediment removal at Station #4
381	Fed.m1	Dissolved Iron at TT 1
382	Fed.m2	Dissolved Iron at TT 2
383	Fed.m3	Dissolved Iron at TT 3
384	Fed.m4	Dissolved Iron at TT 4
385	Fed.m5	Dissolved Iron at TT 5
386	Fed.m6	Dissolved Iron at TT 6
387	Fed.m7	Dissolved Iron at TT 7
388	Fed.m8	Dissolved Iron at TT 8
389	Fed.ww	Dissolved Iron at Woburn West outlet
390	Feda.ag	Dissolved Iron at Atlantic Gelatin
391	FedA.cA	Dissolved Iron at the end of Channel A
392	FedB.cB	Dissolved Iron at the end of Channel B
393	FedC.cC	Dissolved Iron at the end of Channel C
394	FedD.cD	Dissolved Iron at the end of Channel D

TABLE 4-5 (cont.)**OUTPUT FILES****DRAFT TECHNICAL MEMORANDUM****INDUSTRI-PLEX SITE****WOBURN, MASSACHUSETTS****PAGE 5 OF 7**

File No. in Source Code	Filename	Description
395	FedE.cE	Dissolved Iron at the end of Channel E
396	FedF.cF	Dissolved Iron at the end of Channel F
397	Fed.r4	Dissolved Iron after water removal at Station #4
401	Asd.m1	Dissolved Arsenic at TT 1
402	Asd.m2	Dissolved Arsenic at TT 2
403	Asd.m3	Dissolved Arsenic at TT 3
404	Asd.m4	Dissolved Arsenic at TT 4
405	Asd.m5	Dissolved Arsenic at TT 5
406	Asd.m6	Dissolved Arsenic at TT 6
407	Asd.m7	Dissolved Arsenic at TT 7
408	Asd.m8	Dissolved Arsenic at TT 8
409	Asd.ww	Dissolved Arsenic at Woburn West outlet
410	Asda.ag	Dissolved Arsenic at Atlantic Gelatin
411	AsdA.cA	Dissolved Arsenic at the end of Channel A
412	AsdB.cB	Dissolved Arsenic at the end of Channel B
413	AsdC.cC	Dissolved Arsenic at the end of Channel C
414	AsdD.cD	Dissolved Arsenic at the end of Channel D
415	AsdE.cE	Dissolved Arsenic at the end of Channel E
416	AsdF.cF	Dissolved Arsenic at the end of Channel F
417	Asd.r4	Dissolved Arsenic after water removal at Station #4
421	Crd.m1	Dissolved Chromium at TT 1
422	Crd.m2	Dissolved Chromium at TT 2
423	Crd.m3	Dissolved Chromium at TT 3
424	Crd.m4	Dissolved Chromium at TT 4
425	Crd.m5	Dissolved Chromium at TT 5
426	Crd.m6	Dissolved Chromium at TT 6
427	Crd.m7	Dissolved Chromium at TT 7
428	Crd.m8	Dissolved Chromium at TT 8
429	Crd.ww	Dissolved Chromium at Woburn West outlet
430	Crda.ag	Dissolved Chromium at Atlantic Gelatin
431	CrdA.cA	Dissolved Chromium at the end of Channel A
432	CrdB.cB	Dissolved Chromium at the end of Channel B
433	CrdC.cC	Dissolved Chromium at the end of Channel C
434	CrdD.cD	Dissolved Chromium at the end of Channel D
435	CrdE.cE	Dissolved Chromium at the end of Channel E
436	CrdF.cF	Dissolved Chromium at the end of Channel F
437	Crd.r4	Dissolved Chromium after water removal at Station #4
441	Cud.m1	Dissolved Copper at TT 1
442	Cud.m2	Dissolved Copper at TT 2
443	Cud.m3	Dissolved Copper at TT 3
444	Cud.m4	Dissolved Copper at TT 4

TABLE 4-5 (cont.)**OUTPUT FILES****DRAFT TECHNICAL MEMORANDUM****INDUSTRI-PLEX SITE****WOBURN, MASSACHUSETTS****PAGE 6 OF 7**

File No. in Source Code	Filename	Description
445	Cud.m5	Dissolved Copper at TT 5
446	Cud.m6	Dissolved Copper at TT 6
447	Cud.m7	Dissolved Copper at TT 7
448	Cud.m8	Dissolved Copper at TT 8
449	Cud.ww	Dissolved Copper at Woburn West outlet
450	Cuda.ag	Dissolved Copper at Atlantic Gelatin
451	CudA.cA	Dissolved Copper at the end of Channel A
452	CudB.cB	Dissolved Copper at the end of Channel B
453	CudC.cC	Dissolved Copper at the end of Channel C
454	CudD.cD	Dissolved Copper at the end of Channel D
455	CudE.cE	Dissolved Copper at the end of Channel E
456	CudF.cF	Dissolved Copper at the end of Channel F
457	Cud.r4	Dissolved Copper after water removal at Station #4
461	Pbd.m1	Dissolved Lead at TT 1
462	Pbd.m2	Dissolved Lead at TT 2
463	Pbd.m3	Dissolved Lead at TT 3
464	Pbd.m4	Dissolved Lead at TT 4
465	Pbd.m5	Dissolved Lead at TT 5
466	Pbd.m6	Dissolved Lead at TT 6
467	Pbd.m7	Dissolved Lead at TT 7
468	Pbd.m8	Dissolved Lead at TT 8
469	Pbd.ww	Dissolved Lead at Woburn West outlet
470	Pbda.ag	Dissolved Lead at Atlantic Gelatin
471	PbdA.cA	Dissolved Lead at the end of Channel A
472	PbdB.cB	Dissolved Lead at the end of Channel B
473	PbdC.cC	Dissolved Lead at the end of Channel C
474	PbdD.cD	Dissolved Lead at the end of Channel D
475	PbdE.cE	Dissolved Lead at the end of Channel E
476	PbdF.cF	Dissolved Lead at the end of Channel F
477	Pbd.r4	Dissolved Lead after water removal at Station #4
481	Hgd.m1	Dissolved Mercury at TT 1
482	Hgd.m2	Dissolved Mercury at TT 2
483	Hgd.m3	Dissolved Mercury at TT 3
484	Hgd.m4	Dissolved Mercury at TT 4
485	Hgd.m5	Dissolved Mercury at TT 5
486	Hgd.m6	Dissolved Mercury at TT 6
487	Hgd.m7	Dissolved Mercury at TT 7
488	Hgd.m8	Dissolved Mercury at TT 8
489	Hgd.ww	Dissolved Mercury at Woburn West outlet
490	Hgda.ag	Dissolved Mercury at Atlantic Gelatin
491	HgdA.cA	Dissolved Mercury at the end of Channel A

TABLE 4-5 (cont.)**OUTPUT FILES****DRAFT TECHNICAL MEMORANDUM****INDUSTRI-PLEX SITE****WOBURN, MASSACHUSETTS****PAGE 7 OF 7**

File No. in Source Code	Filename	Description
492	HgdB.cB	Dissolved Mercury at the end of Channel B
493	HgdC.cC	Dissolved Mercury at the end of Channel C
494	HgdD.cD	Dissolved Mercury at the end of Channel D
495	HgdE.cE	Dissolved Mercury at the end of Channel E
496	HgdF.cF	Dissolved Mercury at the end of Channel F
497	Hgd.r4	Dissolved Mercury after water removal at Station #4
499	ssconc.conc	Same as ssconc2.conc except column labels omitted
500	ssconc2.conc	SS summary data, concentrations
501	tempFf.flux	Fe summary data, fluxes
502	tempAf.flux	As summary data, fluxes
503	tempRf.flux	Cr summary data, fluxes
504	tempUf.flux	Cu summary data, fluxes
505	tempPf.flux	Pb summary data, fluxes
506	tempHf.flux	Hg summary data, fluxes
509	Ssflux.flux	Same as ssflux2.flux except column labels omitted
510	ssflux2.flux	SS summary data, fluxes
511	tempFc.conc	Fe summary data, concentrations
512	tempAc.conc	As summary data, concentrations
513	tempRc.conc	Cr summary data, concentrations
514	tempUc.conc	Cu summary data, concentrations
515	tempPc.conc	Pb summary data, concentrations
516	tempHc.conc	Hg summary data, concentrations
521	f.m1	Modeled flow for Aberjona River at TT 1
522	f.m2	Modeled flow for Aberjona River at TT 2
523	f.m3	Modeled flow for Aberjona River at TT 3
524	f.m4	Modeled flow for Aberjona River at TT 4
525	f.m5	Modeled flow for Aberjona River at TT 5
526	f.m6	Modeled flow for Aberjona River at TT 6
527	f.m7	Modeled flow for Aberjona River at TT 7
528	f.m8	Modeled flow for Aberjona River at TT 8
529	f.ww	Modeled flow at the Wedge Pond Outlet
530	f.ag	Modeled flow at the Atlantic Gelatin Site
531	fA.cA	Modeled flow at the Outlet to Channel A
532	fB.cB	Modeled flow at the Outlet to Channel B
533	fC.cC	Modeled flow at the Outlet to Channel C
534	fD.cD	Modeled flow at the Outlet to Channel D
535	fE.cE	Modeled flow at the Outlet to Channel E
536	fF.cF	Modeled flow at the Outlet to Channel F
537	f.r4	Modeled Flow after Water Removed at Station #4

TABLE 4-6
FILES UTILIZED FOR POST PROCESSING OUTPUT FROM MODEL
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

File name	Description
plot_flowss1.m	Plot file for suspended sediments, station 1
plot_flowss2.m	Plot file for suspended sediments, station 2
plot_flowss3.m	Plot file for suspended sediments, station 3
plot_flowss4.m	Plot file for suspended sediments, station 4
plot_flowss5.m	Plot file for suspended sediments, station 5
plot_flowss6.m	Plot file for suspended sediments, station 6
plot_flowss7.m	Plot file for suspended sediments, station 7
plot_flowss8.m	Plot file for suspended sediments, station 8
john_plot_flowss.m	Master file to automate the plotting of the plot_flowss?.m files
plot_As1.m	Plot file for Arsenic concentration, station 1
plot_As2.m	Plot file for Arsenic concentration, station 2
plot_As3.m	Plot file for Arsenic concentration, station 3
plot_As4.m	Plot file for Arsenic concentration, station 4
plot_As5.m	Plot file for Arsenic concentration, station 5
plot_As6.m	Plot file for Arsenic concentration, station 6
plot_As7.m	Plot file for Arsenic concentration, station 7
plot_As8.m	Plot file for Arsenic concentration, station 8
john_plot_As.m	Master file to automate the plotting of the plot_As?.m files
plot_Fe1.m	Plot file for Iron concentration, station 1
plot_Fe2.m	Plot file for Iron concentration, station 2
plot_Fe3.m	Plot file for Iron concentration, station 3
plot_Fe4.m	Plot file for Iron concentration, station 4
plot_Fe5.m	Plot file for Iron concentration, station 5
plot_Fe6.m	Plot file for Iron concentration, station 6
plot_Fe7.m	Plot file for Iron concentration, station 7
plot_Fe8.m	Plot file for Iron concentration, station 8
plot_Cr1.m	Plot file for Chromium concentration, station 1
plot_Cr2.m	Plot file for Chromium concentration, station 2
plot_Cr3.m	Plot file for Chromium concentration, station 3
plot_Cr4.m	Plot file for Chromium concentration, station 4
plot_Cr5.m	Plot file for Chromium concentration, station 5
plot_Cr6.m	Plot file for Chromium concentration, station 6
plot_Cr7.m	Plot file for Chromium concentration, station 7
plot_Cr8.m	Plot file for Chromium concentration, station 8
plot_Cu1.m	Plot file for Copper concentration, station 1
plot_Cu2.m	Plot file for Copper concentration, station 2
plot_Cu4.m	Plot file for Copper concentration, station 4
plot_Cu8.m	Plot file for Copper concentration, station 8
plot_Pb1.m	Plot file for Lead concentration, station 1
plot_Pb2.m	Plot file for Lead concentration, station 2
plot_Pb4.m	Plot file for Lead concentration, station 4
plot_Pb8.m	Plot file for Lead concentration, station 8

TABLE 4-6 (cont.)

FILES UTILIZED FOR POST PROCESSING OUTPUT FROM MODEL

DRAFT TECHNICAL MEMORANDUM

INDUSTRI-PLEX SITE

WOBURN, MASSACHUSETTS

PAGE 2 OF 2

File name	Description
plot_Hg1.m	Plot file for Mercury concentration, station 1
plot_Hg2.m	Plot file for Mercury concentration, station 2
plot_Hg4.m	Plot file for Mercury concentration, station 4
plot_Hg8.m	Plot file for Mercury concentration, station 8
plot_Asflux1.m	Plot file for Arsenic flux, station 1
plot_Asflux2.m	Plot file for Arsenic flux, station 2
plot_Asflux3.m	Plot file for Arsenic flux, station 3
plot_Asflux4.m	Plot file for Arsenic flux, station 4
plot_Asflux5.m	Plot file for Arsenic flux, station 5
plot_Asflux6.m	Plot file for Arsenic flux, station 6
plot_Asflux7.m	Plot file for Arsenic flux, station 7
plot_Asflux8.m	Plot file for Arsenic flux, station 8
john_plot_Asflux	Master file to automate the plotting of the plot_Asflux?.m files

TABLE 5-1
CALIBRATION PARAMETERS FOR STREAMFLOW MODEL
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Module	IAQ (in)	IAS (in)	IAM (in)	KQ	KS	KM
1	0.00	0.19	0.20	0.03	0.13	0.75
2	0.00	0.00	0.00	0.02	0.55	1.00
3	0.00	0.00	0.14	0.03	0.12	1.00
4	0.50	0.30	0.95	0.01	0.10	0.95
5	0.07	0.52	0.20	0.12	0.60	0.75
6	0.10	0.30	0.06	0.04	0.10	0.75
7	0.06	0.10	0.23	0.20	0.10	0.80
8	0.00	0.20	0.25	0.35	0.61	0.70

Note: “IA” corresponds to the initial abstraction and “K” corresponds to the fraction of rainfall that is converted to runoff. Last letter for each parameter corresponds to “Q” for quick, “S” for slow, and “M” for melt water.

TABLE 5-2
CALIBRATION PARAMETERS USED TO SIMULATE WATER LOSS
BETWEEN STATIONS 2 AND 4
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Calibration Parameter	Value	Description
Datum	0.04	Depth, in feet, Above Measuring Point at Station 4 (Invert of Outlet Structure).
LL2	2.0	Proportionality Factor for Water Removal
maxl	3.1	Level at which Removal is Set to a Constant

Note: See Section 4.1.3 for more details concerning the definition of the calibration parameters included in this table.

TABLE 5-3
CALIBRATION PARAMETERS FOR DISSOLVED METALS
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Module	[As _d] _{quick} (µg/L)	[As _d] _{slow} (µg/L)	[As _d] _{ltbf} (µg/L)	[Fe _d] _{quick} (mg/L)	[Fe _d] _{slow} (mg/L)	[Fe _d] _{ltbf} (mg/L)	[Cr _d] _{quick} (µg/L)	[Cr _d] _{slow} (µg/L)	[Cr _d] _{ltbf} (µg/L)
1	0.30	2.50	1.30	0.10	0.25	0.27	4.50	0.50	1.05
2	90.00	20.50	21.00	8.05	0.40	0.70	0.00	3.00	2.50
3	0.00	1.65	10.55	0.01	0.01	1.12	1.50	1.30	1.05
4	7.00	7.00	2.00	8.00	4.01	15.80	0.75	0.30	0.20
5	0.00	0.00	0.00	0.18	0.01	0.01	2.00	1.75	2.88
6	25.01	0.01	0.01	1.95	0.01	0.01	6.50	6.00	1.50
7	5.00	0.00	0.00	0.27	0.01	0.01	2.35	0.00	0.01
8	0.50	2.80	26.00	0.05	0.25	1.60	2.00	0.50	0.50

Module	[Cu _d] _{quick} (µg/L)	[Cu _d] _{slow} (µg/L)	[Cu _d] _{ltbf} (µg/L)	[Pb _d] _{quick} (µg/L)	[Pb _d] _{slow} (µg/L)	[Pb _d] _{ltbf} (µg/L)	[Hg _d] _{quick} (µg/L)	[Hg _d] _{slow} (µg/L)	[Hg _d] _{ltbf} (µg/L)
1	6.00	5.75	2.40	3.15	2.75	1.65	0.00	0.00	0.00
2	6.10	5.50	22.00	0.01	0.00	0.001	0.00	0.00	0.00
3	5.25	4.00	2.15	1.50	1.50	0.80	0.00	0.00	0.00
4	0.05	0.03	0.00	8.50	7.00	23.80	2.00	1.75	15.50
5	5.20	3.80	1.00	0.02	0.01	2.05	0.00	0.05	0.00
6	289.00	1.40	0.00	0.50	0.50	1.80	0.00	0.10	0.00
7	15.50	5.40	0.01	13.80	1.50	0.01	0.00	0.10	0.00
8	11.00	1.40	7.00	3.50	12.50	80.80	0.00	0.10	0.10

TABLE 5-4
CALIBRATION PARAMETERS FOR SUSPENDED SEDIMENT TRANSPORT
FROM WITHIN A MODULE
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Module	f	bfpot	Cs	thresq	maxlq	k	Cq	thresr	frac	Cr
1	0.010	5.000	0.0000400	0.000	200000	0.010	0.000008000	0.000	0.200	3.000
2	0.010	5.000	0.0000001	0.000	200000	0.010	0.000000100	0.000	0.000	3.000
3	0.010	5.000	0.0000001	0.000	200000	0.010	0.000000100	0.000	0.200	1.300
4	0.010	5.000	0.0000001	0.000	50000	0.010	0.000000030	0.000	0.000	3.000
5	0.010	5.000	0.0000001	0.000	50000	0.010	0.000000030	0.000	0.000	3.000
6	0.010	5.000	0.0000400	0.000	200000	0.010	0.000400000	0.000	0.200	3.000
7	0.010	5.000	0.0000001	0.000	50000	0.010	0.000000080	0.000	0.000	3.000
8	0.010	5.000	0.0000800	0.000	100000	0.010	0.000001000	0.000	0.200	3.000

TABLE 5-5
CALIBRATION PARAMETERS FOR SUSPENDED SEDIMENT TRANSPORT
FOR CHANNELS THAT LINK MODULES AND FOR WITHDRAWAL POINTS
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Location	f	bfpot	Cs
Channel A	0.010	5.00	0.00000000
Channel B	0.010	5.00	0.00000000
Channel C	0.010	5.00	0.00000001
Channel D	0.010	5.00	0.00008000
Channel E	0.010	5.00	0.00000000
Channel F	0.010	5.00	0.00001000
Atlantic Gelatin	0.010	5.00	0.00008000
After Water Loss At Station #4	0.010	5.00	0.00000001

TABLE 5-6
CALIBRATION PARAMETERS FOR PARTICULATE METALS
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Module	[As _p] _{quick} (mg/kg)	[As _p] _{slow} (mg/kg)	[As _p] _{ltbf} (mg/kg)	[Fe _p] _{quick} (%)	[Fe _p] _{slow} (%)	[Fe _p] _{ltbf} (%)	[Cr _p] _{quick} (mg/kg)	[Cr _p] _{slow} (mg/kg)	[Cr _p] _{ltbf} (mg/kg)
1	190	9.0	130	8.50	4.0	15.0	480	250.0	180
2	95000	25000	13000	110	95.0	110.0	0.0	0.0	0.0
3	3000	800	1600	35.3	8.75	24.0	900	130	90.0
4	0.01	0.01	0.0	11.05	31.0	55.0	0.04	0.01	0.0
5	600	400	5000	43.35	5.0	40.5	89550	155	5990
6	700	0.0	0.0	13.0	0.75	0.01	680	0.0	0.0
7	50	0.0	0.0	31.0	0.0	0.01	0.0	0.0	0.05
8	10	0.0	60	5.0	1.0	28.0	350	1280	9650

Module	[Cu _p] _{quick} (mg/kg)	[Cu _p] _{slow} (mg/kg)	[Cu _p] _{ltbf} (mg/kg)	[Pb _p] _{quick} (mg/kg)	[Pb _p] _{slow} (mg/kg)	[Pb _p] _{ltbf} (mg/kg)	[Hg _p] _{quick} (mg/kg)	[Hg _p] _{slow} (mg/kg)	[Hg _p] _{ltbf} (mg/kg)
1	810	775	355	650	550	300	0.0	0.0	0.0
2	0.0	1.0	250	0.01	0.0	0.05	0.0	0.0	0.0
3	1950	100.9	200	680	55	180.6	0.0	0.0	0.0
4	0.04	0.0	0.0	0.0	0.0	0.0	15.0	13.0	250
5	99110	151	2028.5	55119	4.0	1850.5	11.5	0.50	0.0
6	1890	690	949	3100	48	2640.6	49	0.0	0.0
7	2990	200	0.01	0.0	1.6	0.0	0.5	0.0	0.0
8	350	1300	5900	3.0	2100.6	15100.6	0.0	0.0	0.0

TABLE 5-7
PERFORMANCE OUTCOME FOR STREAMFLOW MODEL
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Ave. Measured Flow (cfs)	Ave. Modeled Flow (cfs)	Difference (cfs)	Difference (%)	R ²
1	2.26	2.26	0.00	0%	0.733
2	4.31	3.54	0.77	18%	0.772
3	3.26	3.06	0.20	6%	0.777
4	2.76	2.49	0.27	10%	0.692
5	6.57	7.42	-0.85	13%	0.774
6	7.87	8.74	-0.87	11%	0.742
7	13.58	13.54	0.04	0.3%	0.742
8	24.79	25.61	-0.82	3%	0.797
8, USGS	20.52	24.84	-4.32	21%	0.699

TABLE 5-8
SUMMARY STATISTICS BETWEEN MODELED AND MEASURED FLOW AT
EACH STATION INCLUDING PERCENTILE FLOW VALUES
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Percentile	Station 1, cfs		Station 2, cfs		Station 3, cfs		Station 4, cfs	
	Computed	Measured	Computed	Measured	Computed	Measured	Computed	Measured
5	0.01	0.81	0.02	0.69	0.04	0.49	0.06	0.93
10	0.09	0.81	0.10	0.73	0.18	0.51	0.18	1.00
25	0.30	0.81	0.45	0.79	0.52	0.54	0.54	1.19
50	1.30	0.81	2.81	2.91	2.34	1.49	2.11	2.29
75	3.33	2.42	4.82	6.82	4.19	4.95	3.68	3.45
90	5.31	5.57	7.89	9.40	6.72	7.72	5.61	5.27
95	7.31	8.12	10.99	11.79	9.10	10.18	7.28	6.53
Average	2.26	2.26	4.31	3.54	3.26	3.06	2.76	2.49
% difference of Average	0%		18%		6%		10%	
R ²	0.733		0.772		0.777		0.692	

Percentile	Station 5, cfs		Station 6, cfs		Station 7, cfs		Station 8, cfs		USGS
	Computed	Measured	Computed	Measured	Computed	Measured	Computed	Measured	Measured
5	0.10	2.52	0.18	1.37	0	3.78	5.67	3.82	2.75
10	0.51	2.52	0.39	2.25	0	3.81	6.16	4.22	3.11
25	1.34	2.52	2.28	3.62	0.75	3.88	7.91	5.86	5.04
50	5.52	2.52	8.62	7.29	9.30	6.84	21.91	13.04	10.87
75	9.84	5.73	14.04	13.17	17.72	16.19	32.54	34.13	25.71
90	15.83	15.8	21.79	22.15	30.70	30.12	49.22	60.73	48.09
95	22.18	24.05	29.47	27.86	44.56	42.74	66.86	80.40	71.10
Average	6.57	7.42	7.87	8.74	7.87	8.74	24.79	25.61	
							24.84		20.52
% difference of Average	13%		11%		0.30%		3%		21%
R ²	0.774		0.742		0.742		0.797		0.699

TABLE 5-9
PERFORMANCE OUTCOME FOR DISSOLVED METALS MODEL BASED UPON GRAB SAMPLE DATA
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Average [As] _d ($\mu\text{g}/\text{L}$)			Average [Fe] _d (mg/L)			Average [Cr] _d ($\mu\text{g}/\text{L}$)		
	Meas.	Mod.	Diff.	Meas.	Mod.	Diff.	Meas.	Mod.	Diff.
1	1.31	1.33	-0.02	0.28	0.27	0.01	1.05	1.05	0.00
2	4.97	4.90	0.07	0.37	0.35	0.02	1.43	1.32	0.11
3	10.84	10.08	0.76	1.07	1.06	0.01	1.05	1.06	-0.01
4	9.96	9.34	0.62	0.66	0.65	0.01	1.55	1.82	-0.27
5	5.72	6.21	-0.49	0.57	0.81	-0.24	1.59	1.51	0.08
6	2.74	4.93	-2.19	0.32	0.63	-0.31	1.47	1.5	-0.03
7 ¹	2.17	5.38	-3.21	0.27	0.67	-0.40	0.94	1.92	-0.98
8	2.13	2.68	-0.55	0.19	0.20	-0.01	1.29	1.32	-0.03

¹Modeled and measured values omitted in computing averages for times when modeled flow was less than 0.3 cfs.

Station	Average [Cu] _d ($\mu\text{g}/\text{L}$)			Average [Pb] _d ($\mu\text{g}/\text{L}$)			Average [Hg] _d ($\mu\text{g}/\text{L}$)		
	Meas.	Mod.	Diff.	Meas.	Mod.	Diff.	Meas.	Mod.	Diff.
1	2.39	2.46	-0.07	1.7	1.65	0.05	NS	NS	NS
2	5.26	5.3	-0.04	NS ²	NS	NS	NS	NS	NS
3	2.24	2.31	-0.07	NS	NS	NS	NS	NS	NS
4	3.67	5.48	-1.81	2.09	1.99	0.10	0.15	0.14	0.01
5	2.93	3.09	-0.16	1.60	1.66	-0.06	NS	NS	NS
6	2.43	2.67	-0.24	NS	NS	NS	0.15	0.19	-0.04
7 ¹	2.59	3.26	-0.67	NS	NS	NS	NS	NS	NS
8	6.62	6.98	-0.36	2.76	5.36	-2.60	0.10	0.02	0.08

¹Modeled and measured values omitted in computing averages for times when modeled flow was less than 0.3 cfs.

²NS = No Statistic Available Due to Measured Data Below Detection Limits.

TABLE 5-10
PERFORMANCE OUTCOME FOR DISSOLVED METALS MODEL BASED UPON COMPOSITE SAMPLE DATA
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Average $[Fe]_d$ (mg/L)			Average $[As]_d$ ($\mu\text{g}/\text{L}$)			Average $[Cr]_d$ ($\mu\text{g}/\text{L}$)		
	Meas.	Mod.	Diff.	Meas.	Mod.	Diff.	Meas.	Mod.	Diff.
1	0.2	0.22	-0.02	1.25	1.70	-0.45	1.65	1.65	0.00
2	0.44	0.42	0.02	10.36	9.91	0.45	1.7	2	-0.30
3	0.21	0.22	-0.01	2.15	3.03	-0.88	1.33	1.29	0.04
4	-----	-----	-----	-----	-----	-----	-----	-----	-----
5	0.3	0.28	0.02	3.73	3.62	0.11	1.67	1.71	-0.04
6	0.34	0.32	0.02	4.05	3.92	0.13	2.17	2.1	0.07
7	0.24	0.24	0.00	2.83	3.54	-0.71	1.77	1.75	0.02
8	-----	-----	-----	-----	-----	-----	-----	-----	-----

NS = No Statistic Available Due to Measured Data Below Detection Limits.

Station	Average $[Cu]_d$ ($\mu\text{g}/\text{L}$)			Average $[Pb]_d$ ($\mu\text{g}/\text{L}$)			Average $[Hg]_d$ ($\mu\text{g}/\text{L}$)		
	Meas.	Mod.	Diff.	Meas.	Mod.	Diff.	Meas.	Mod.	Diff.
1	5.33	5.26	0.07	2.40	2.33	0.07	NS ¹	NS	NS
2	5.60	5.65	-0.05	1.20	1.52	-0.32	NS	NS	NS
3	4.00	4.16	-0.16	1.20	1.28	-0.08	NS	NS	NS
4	-----	-----	-----	-----	-----	-----	-----	-----	-----
5	4.50	4.49	0.01	NS	NS	NS	NS	NS	NS
6	16.73	16.81	-0.08	NS	NS	NS	NS	NS	NS
7	13.25	13.15	0.10	2.50	2.54	-0.04	NS	NS	NS
8	-----	-----	-----	-----	-----	-----	-----	-----	-----

NS = No Statistic Available Due to Measured Data Below Detection Limits.

TABLE 5-11
PERFORMANCE OUTCOME FOR SUSPENDED SEDIMENT MODEL
BASED UPON GRAB SAMPLE DATA
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Average Measured SS (mg/L)	Average Modeled SS (mg/L)	Difference (mg/L)	% Difference
1	4.84	5.00	-0.16	-3%
2	4.41	4.98	-0.57	-13%
3	4.68	5.00	-0.32	-7%
4	12.20	14.03	-1.83	-15%
5	5.64	5.00	0.64	11%
6	4.54	5.01	-0.47	-10%
7 ¹	8.70 (4.61 ²)	5.42	3.26	37% (-18% ²)
8	51.45	50.58	0.87	1.7%

¹ Modeled and measured values omitted in computing averages for times when modeled flow was less than 0.3 cfs.

² Average measured SS concentration omitting a result that was very high (50 mg/L) results in an averaged measured SS concentration of 4.61 mg/L.

TABLE 5-12
PERFORMANCE OUTCOME FOR SUSPENDED SEDIMENT MODEL
BASED UPON COMPOSITE SAMPLE DATA
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Average Measured SS (mg/L)	Average Modeled SS (mg/L)	Difference (mg/L)	% Difference
1	21.57	21.59	-0.02	-0.1%
2	12.62	16.73	-4.11	-32.6%
3	8.06	8.28	-0.22	-2.7%
4	-----	-----	-----	-----
5	6.80	6.96	-0.16	-2.4%
6	17.08	17.12	-0.04	-0.2%
7	10.27	11.62	-1.35	-13%
8	-----	-----	-----	-----

TABLE 5-13
PERFORMANCE OUTCOME FOR TOTAL METALS MODEL BASED
UPON GRAB SAMPLE DATA
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Average [Fe] _t (mg/L)			Average [As] _t (µg/L)			Average [Cr] _t (µg/L)		
	Meas.	Mod.	Diff.	Meas.	Mod.	Diff.	Meas.	Mod.	Diff.
1	0.91	0.96	-0.05	1.93	2.00	-0.07	2.11	2.22	-0.11
2	1.83	1.84	-0.01	18.72	18.48	0.24	1.8	2.28	-0.48
3	2.27	2.22	0.05	17.66	17.89	-0.23	1.31	1.54	-0.23
4	3.16	3.27	-0.11	33.60	45.62	-12.02	5.02	8.28	-3.26
5	2.42	2.29	0.13	19.86	19.82	0.04	7.42	7.27	0.15
6	1.41	1.84	-0.43	10.73	16.37	-5.64	3.95	6.57	-2.62
7 ¹	1.18	1.98	-0.80	5.72	18.38	-12.66	3.66	7.45	-3.79
8	3.82	4.05	-0.23	13.88	13.79	0.09	28.51	27.23	1.28

¹Modeled and measured values omitted in computing averages for times when modeled flow was less than 0.3 cfs.

Station	Average [Cu] _t (µg/L)			Average [Pb] _t (µg/L)			Average [Hg] _t (µg/L)		
	Meas.	Mod.	Diff.	Meas.	Mod.	Diff.	Meas.	Mod.	Diff.
1	4.66	4.48	0.18	3.28	3.34	-0.06	NS ²	NS	NS
2	7.32	7.13	0.19	2.57	2.68	-0.11	NS	NS	NS
3	3.13	3.25	-0.12	1.7	1.7	0.00	NS	NS	NS
4	10.86	17.09	-6.23	5.59	9.31	-3.72	0.24	0.26	-0.02
5	5.97	6.01	-0.04	3.95	4.05	-0.10	0.10	0.27	-0.17
6	5.56	6.83	-1.27	5.72	6.59	-0.87	NS	NS	NS
7 ¹	5.91	6.5	-0.59	3.66	6.99	-3.33	NS	NS	NS
8	43.43	52.36	-8.93	46.28	33.82	12.46	0.30	0.89	-0.59

¹Modeled and measured values omitted in computing averages for times when modeled flow was less than 0.3 cfs.

²NS = No Statistic Available Due to Measured Data Below Detection Limits.

TABLE 5-14
PERFORMANCE OUTCOME FOR TOTAL METALS MODEL
BASED UPON COMPOSITE SAMPLE DATA
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Average $[Fe]_t$ (mg/L)			Average $[As]_t$ ($\mu\text{g}/\text{L}$)			Average $[Cr]_t$ ($\mu\text{g}/\text{L}$)		
	Meas.	Mod.	Diff.	Meas.	Mod.	Diff.	Meas.	Mod.	Diff.
1	1.83	1.83	0.00	3.48	3.61	-0.13	9.47	9.42	0.05
2	3.91	3.02	0.89	47.58	46.26	1.32	3.45	6.76	-3.31
3	1.88	1.82	0.06	15.18	15.23	-0.05	3.38	3.44	-0.06
4	-----	-----	-----	-----	-----	-----	-----	-----	-----
5	1.63	1.4	0.23	15.15	16.00	-0.85	7.88	8.09	-0.21
6	2.52	2.56	-0.04	20.33	20.21	0.12	16.64	16.59	0.05
7	1.45	1.45	0.00	9.48	9.96	-0.48	9.40	10.53	-1.13
8	-----	-----	-----	-----	-----	-----	-----	-----	-----

Station	Average $[Cu]_t$ ($\mu\text{g}/\text{L}$)			Average $[Pb]_t$ ($\mu\text{g}/\text{L}$)			Average $[Hg]_t$ ($\mu\text{g}/\text{L}$)		
	Meas.	Mod.	Diff.	Meas.	Mod.	Diff.	Meas.	Mod.	Diff.
1	16.48	16.76	-0.28	13.13	13.31	-0.18	NS ²	NS	NS
2	8.90	12.62	-3.72	4.80	9.71	-4.91	NS	NS	NS
3	9.23	9.23	0.00	3.47	3.53	-0.06	NS	NS	NS
4	-----	-----	-----	-----	-----	-----	-----	-----	-----
5	9.97	9.65	0.32	5.17	5.18	-0.01	0.13	0.01	0.12
6	36.00	36.01	-0.01	14.70	14.66	0.04	0.15	0.16	-0.01
7	20.98	20.89	0.09	9.38	26.07	-16.69	0.11	0.02	0.09
8	-----	-----	-----	-----	-----	-----	-----	-----	-----

²NS = No Statistic Available Due to Measured Data Below Detection Limits.

TABLE 5-15
MODELED OUTPUT VALUES EVALUATED AS PART OF THE SENSITIVITY ANALYSIS
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Stations Evaluated	Flow Output	Suspended Sediment, Grab Samples Only	Metals, Grab Samples Only		
			Dissolved	Total	
1 to 8	Mean Flow at Each Station	Mean Suspended Sediment Concentration at Each Station	Mean As Concentration	Mean As Concentration	
			Mean Fe Concentration	Mean Fe Concentration	
	R ² Value Between Modeled and Mean Flow		Mean Cr Concentration	Mean Cr Concentration	
			Mean Cu Concentration	Mean Cu Concentration	
			Mean Pb Concentration	Mean Pb Concentration	
			Mean Hg Concentration	Mean Hg Concentration	
1, 2, 3, 5, 6, 7			Metals, Composite Samples Only		
			Dissolved	Total	
			Mean As Concentration	Mean As Concentration	
			Mean Fe Concentration	Mean Fe Concentration	
			Mean Cr Concentration	Mean Cr Concentration	
			Mean Cu Concentration	Mean Cu Concentration	
			Mean Pb Concentration	Mean Pb Concentration	
			Mean Hg Concentration	Mean Hg Concentration	

TABLE 5-16
INCREMENTS FOR USED TO EVALUATE SENSITIVITY OF MODEL OUTPUT TO FLOW CALIBRATION PARAMETERS
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Calibration Parameter	Increment used for Sensitivity Analysis
IAQ	+ 0.1
IAS	+ 0.1
IAM	+ 0.1
KQ	+0.05
KS	+ 0.1
KM	+ 0.1

TABLE 5-17
INCREMENTS OF VALUES USED TO EVALUATE SENSITIVITY OF MODEL OUTPUT
TO SUSPENDED SEDIMENT CALIBRATION PARAMETERS
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Calibration Parameter	Increment used for Sensitivity Analysis
Cs (for modules)	x 100
maxlq	x 10
Cq	x 100
frac	+ 0.1
Cr	x 0.5
Cs (for channels)	All 0.000000 or All 0.000008

TABLE 5-18
SELECTED RESULTS FROM SENSITIVITY ANALYSIS FOR FLOW CALIBRATION PARAMETERS
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

	% change for times when flow data were measured		% change for times when grab samples were collected			% change for times when composite samples were collected		
	Flow	R ²	SS Conc (mg/L)	Dissolved As (µg/L)	Total As (µg/L)	SS Conc (mg/L)	Dissolved As (µg/L)	Total As (µg/L)
Calibration Parameter: IAQ Sensitivity Run IAQ = IAQ (optimized) + 0.1								
TT#1	-7.1%	-6.6%	0.0%	0.0%	0.5%	-16.5%	17.1%	-21.3%
TT#2	-4.5%	0.9%	0.0%	0.0%	0.0%	-28.6%	11.8%	7.3%
TT#3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TT#4	-3.2%	2.3%	-19.2%	11.0%	18.6%	-----	-----	-----
TT#5	-1.1%	0.1%	0.0%	0.0%	0.0%	-9.3%	4.4%	6.7%
TT#6	-0.8%	0.7%	0.0%	0.0%	0.0%	-3.1%	3.1%	3.9%
TT#7	-0.7%	0.0%	0.0%	0.2%	0.1%	-1.2%	1.7%	5.9%
TT#8	-0.4%	0.0%	0.5%	1.1%	5.0%	-----	-----	-----
Calibration Parameter: IAS Sensitivity Run IAS = IAS (optimized) + 0.1								
TT#1	-9.3%	-1.9%	0.0%	-1.5%	0.0%	-1.5%	-4.1%	-1.1%
TT#2	-6.8%	-4.5%	0.0%	3.1%	4.1%	-1.1%	4.9%	6.0%
TT#3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TT#4	-5.2%	-0.7%	3.6%	4.4%	6.1%	-----	-----	-----
TT#5	-1.8%	0.3%	0.0%	1.4%	1.7%	-0.6%	2.5%	2.9%
TT#6	-1.5%	0.5%	0.0%	1.4%	1.7%	0.1%	1.8%	1.9%
TT#7	-0.7%	0.2%	-2.8%	-9.5%	-6.7%	0.2%	-2.0%	-1.3%
TT#8	-0.8%	0.1%	0.7%	0.4%	3.4%	-----	-----	-----
Calibration Parameter: IAM Sensitivity Run IAM = IAM (optimized) + 0.1								
TT#1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TT#2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TT#3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TT#4	0.0%	0.0%	0.0%	0.0%	0.0%	-----	-----	-----
TT#5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TT#6	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TT#7	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TT#8	0.0%	0.0%	0.7%	0.0%	2.7%	-----	-----	-----
Calibration Parameter: KQ Sensitivity Run KQ = KQ (optimized) + 0.05								
TT#1	14.6%	-30.8%	0.0%	0.0%	-0.5%	404.3%	-13.5%	460.4%
TT#2	9.0%	-22.8%	0.0%	0.0%	-0.1%	468.1%	-14.7%	20.5%
TT#3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TT#4	6.8%	-47.2%	282.0%	-14.5%	-4.6%	-----	-----	-----
TT#5	2.2%	-0.6%	0.0%	0.0%	0.0%	167.2%	-7.2%	-4.9%
TT#6	1.8%	-4.1%	1.0%	0.0%	0.0%	65.9%	-5.1%	-0.5%
TT#7	1.5%	0.0%	0.9%	0.0%	-1.2%	34.3%	-3.1%	-6.5%
TT#8	0.8%	0.1%	3.9%	-2.2%	-5.7%	-----	-----	-----
Calibration Parameter: KS Sensitivity Run KS = KS (optimized) + 0.1								
TT#1	16.8%	-15.7%	0.0%	0.8%	0.0%	49.3%	10.0%	51.2%
TT#2	9.9%	-9.0%	0.0%	-1.2%	-2.1%	35.8%	-14.7%	-17.2%
TT#3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TT#4	7.2%	-28.2%	16.2%	-13.8%	-17.1%	-----	-----	-----
TT#5	2.2%	-1.0%	0.0%	-0.8%	-1.0%	10.1%	-5.5%	-7.8%
TT#6	1.9%	-4.9%	0.0%	-0.6%	-1.2%	2.6%	-3.6%	-3.8%
TT#7	1.5%	-0.7%	-0.7%	-0.7%	-1.5%	0.0%	-2.8%	-5.1%
TT#8	0.8%	0.1%	1.0%	-1.9%	0.0%	-----	-----	-----

TABLE 5-18 (cont.)

SELECTED RESULTS FROM SENSITIVITY ANALYSIS FOR FLOW CALIBRATION PARAMETERS
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS
PAGE 2 OF 2

	% change for times when flow data were measured		% change for times when grab samples were collected			% change for times when composite samples were collected		
	Flow	R ²	SS Conc (mg/L)	Dissolved As (µg/L)	Total As (µg/L)	SS Conc (mg/L)	Dissolved As (µg/L)	Total As (µg/L)
Calibration Parameter: KM Sensitivity Run KM = KM (optimized) + 0.1								
TT#1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TT#2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TT#3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TT#4	0.0%	0.0%	0.0%	0.0%	0.0%	----	----	----
TT#5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TT#6	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TT#7	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TT#8	0.0%	0.0%	0.7%	0.0%	2.7%	----	----	----

Note: Results, in units of percent change, correspond to changes in mean flow, flow R², mean suspended sediment concentration, and mean arsenic concentrations at the corresponding station at which the calibration parameter was altered. Statistics correspond to times when flow, suspended sediment, and arsenic data were measured.

(corresponds to Module 1 only. Similar tables were generated for each of the other modules.)

TABLE 5-19
SELECTED RESULTS FROM SENSITIVITY ANALYSIS FOR SUSPENDED
SEDIMENT CALIBRATION PARAMETERS
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

	% change for times when grab samples were collected			% change for times when composite samples were collected		
	SS Conc (mg/L)	Dissolved As (µg/L)	Total As (µg/L)	SS Conc (mg/L)	Dissolved As (µg/L)	Total As (µg/L)
Calibration Parameter: Cs for modules Sensitivity Run Cs = Cs (optimized) x 100						
TT#1	0.0%	0.0%	0.0%	121.3%	0.0%	133.0%
TT#2	0.0%	0.0%	0.0%	91.7%	0.0%	6.2%
TT#3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TT#4	95.2%	0.0%	5.7%	-----	-----	-----
TT#5	0.0%	0.0%	0.0%	45.7%	0.0%	0.1%
TT#6	0.4%	0.0%	0.1%	15.6%	0.0%	0.2%
TT#7	1.1%	0.0%	-0.2%	9.0%	0.0%	-1.4%
TT#8	1.3%	0.0%	-0.7%	-----	-----	-----
Calibration Parameter: maxlq Sensitivity Run maxlq =200,000 instead of optimized maxlq of 2,000,000						
TT#1	0.0%	0.0%	5.5%	1273.7%	0.0%	1446.8%
TT#2	0.0%	0.0%	0.4%	951.8%	0.0%	65.4%
TT#3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TT#4	824.2%	0.0%	34.7%	-----	-----	-----
TT#5	0.0%	0.0%	0.2%	322.4%	0.0%	12.8%
TT#6	1.4%	0.0%	0.2%	109.0%	0.0%	11.9%
TT#7	3.3%	0.0%	-1.3%	52.7%	0.0%	3.3%
TT#8	7.6%	0.0%	0.6%	-----	-----	-----
Calibration Parameter: Cq Sensitivity Run Cq=0.0008 instead of optimized Cq of 0.000008						
TT#1	0.0%	0.0%	4.0%	1011.9%	0.0%	1150.4%
TT#2	0.0%	0.0%	0.3%	775.3%	0.0%	53.3%
TT#3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TT#4	683.3%	0.0%	29.1%	-----	-----	-----
TT#5	0.0%	0.0%	0.1%	269.3%	0.0%	9.7%
TT#6	1.2%	0.0%	0.1%	95.6%	0.0%	10.2%
TT#7	1.8%	0.0%	-1.6%	43.8%	0.0%	1.8%
TT#8	5.7%	0.0%	-1.5%	-----	-----	-----
Calibration Parameter: Cr Sensitivity Run Cr=1.5 instead of optimized Cr of 3.0						
TT#1	0.0%	0.0%	-0.5%	-27.4%	0.0%	-31.6%
TT#2	0.0%	0.0%	-0.1%	-25.2%	0.0%	-1.8%
TT#3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TT#4	-21.9%	0.0%	0.9%	-----	-----	-----
TT#5	0.0%	0.0%	0.0%	-7.9%	0.0%	1.6%
TT#6	0.0%	0.0%	0.0%	-2.9%	0.0%	0.7%
TT#7	-0.2%	0.0%	0.0%	-1.5%	0.0%	1.7%
TT#8	0.6%	0.0%	3.6%	-----	-----	-----
Calibration Parameter: frac Sensitivity Run frac =0.3 instead of optimized frac of 0.2						
TT#1	0.0%	0.0%	0.5%	28.7%	0.0%	32.7%
TT#2	0.0%	0.0%	0.1%	26.4%	0.0%	1.8%
TT#3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TT#4	23.0%	0.0%	-0.2%	-----	-----	-----
TT#5	0.0%	0.0%	0.0%	8.2%	0.0%	-1.1%
TT#6	0.0%	0.0%	0.0%	3.0%	0.0%	-0.4%
TT#7	0.0%	0.0%	0.0%	1.6%	0.0%	-1.3%
TT#8	0.9%	0.0%	1.9%	-----	-----	-----

TABLE 5-19 (cont.)**SELECTED RESULTS FROM SENSITIVITY ANALYSIS FOR SUSPENDED****SEDIMENT CALIBRATION PARAMETERS****DRAFT TECHNICAL MEMORANDUM****INDUSTRI-PLEX SITE****WOBURN, MASSACHUSETTS****PAGE 2 OF 2**

	% change for times when grab samples were collected			% change for times when composite samples were collected		
	SS Conc (mg/L)	Dissolved As (µg/L)	Total As (µg/L)	SS Conc (mg/L)	Dissolved As (µg/L)	Total As (µg/L)
Calibration Parameter: Cs (for Channel A) Sensitivity Run Cs=0.000008 instead of optimized Cs of 0.000000						
TT#1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TT#2	0.4%	0.0%	0.1%	4.6%	0.0%	0.3%
TT#3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TT#4	2.2%	0.0%	-3.4%	-----	-----	-----
TT#5	0.0%	0.0%	-0.2%	0.6%	0.0%	-1.6%
TT#6	0.0%	0.0%	-0.1%	0.2%	0.0%	-1.0%
TT#7	0.0%	0.0%	-0.2%	0.2%	0.0%	-1.0%
TT#8	0.7%	0.0%	2.2%	-----	-----	-----

Note: Results, in units of percent change, correspond to changes in mean suspended sediment concentration, and mean arsenic concentrations at the corresponding station at which the calibration parameter was altered. Statistics correspond to times when flow, suspended sediment, and arsenic data were measured. Results corresponding to "Cs for channels" are given for the gaging station located immediately downstream of the channel.

(Cs for modules, maxIq, Cq, frac, Cr, and Cs for channels)
 (corresponds to Module 1 and Channel A only. Similar tables were generated for each of the other modules.)

TABLE 6-1
MODEL RESULTS FOR STREAMFLOW PORTION OF MODEL
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Module	Mean Streamflow from Module (cfs)	Quick Fraction	Slow Fraction	Longterm Baseflow Fraction	Streamflow Fraction	Drainage Area Normalized Flow (cfs/mi ²)
1	2.47	0.09	0.23	0.68	0.10	0.96
2	1.04	0.02	0.68	0.29	0.04	2.32
3	3.06	0.08	0.31	0.61	0.13	1.15
4	0.15	0.21	0.16	0.63	0.01	0.90
5	1.99	0.11	0.45	0.43	0.08	1.32
6	1.68	0.04	0.17	0.79	0.07	0.83
7	6.63	0.24	0.19	0.57	0.27	1.26
8	2.57	0.37	0.40	0.23	0.11	2.70
Wob. West	7.43	-----	-----	-----	0.30	0.79
Loss at 4	-1.25	-----	-----	-----	-0.05	-----
Atl. Gelatin	-1.40	-----	-----	-----	-0.06	-----
Total	24.37	-----	-----	-----	1.00	-----

TABLE 6-2
MODEL RESULTS FOR DISSOLVED ARSENIC FLUX
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Module	Mean Dissolved Arsenic Flux from Module (g/hr)	Quick Fraction	Slow Fraction	Longterm Baseflow Fraction	Total Dissolved Flux Fraction	Drainage Area Normalized Flux (g/hr* mi ²)
1	0.37	0.02	0.38	0.60	0.05	0.15
2	2.46	0.12	0.61	0.27	0.35	5.47
3	2.17	0.00	0.07	0.93	0.31	0.81
4	0.04	0.01	0.47	0.52	0.01	0.22
5	0.00	0.00	0.00	0.00	0.00	0.00
6	0.28	0.99	0.00	0.00	0.04	0.14
7	0.37	0.00	0.00	1.00	0.05	0.08
8	1.94	0.02	0.15	0.82	0.28	2.04
Woburn West	0.91	-----	-----	-----	0.13	0.10
Loss at 4	-1.03	-----	-----	-----	-0.15	-----
Atlantic Gelatin	-0.50	-----	-----	-----	-0.07	-----
Total	7.01	-----	-----	-----	1.00	-----

TABLE 6-3
MODEL RESULTS FOR DISSOLVED IRON FLUX
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Module	Mean Dissolved Iron Flux from Module (g/hr)	Quick Fraction	Slow Fraction	Longterm Baseflow Fraction	Total Dissolved Flux Fraction	Drainage Area Normalized Flux (g/hr* mi ²)
1	191.88	0.01	0.75	0.24	0.23	74.95
2	78.44	0.35	0.37	0.28	0.10	174.31
3	214.57	0.00	0.00	0.99	0.26	80.36
4	166.94	0.00	0.06	0.94	0.20	981.98
5	5.90	0.69	0.16	0.15	0.01	3.91
6	23.12	0.93	0.01	0.06	0.03	11.39
7	41.45	0.89	0.03	0.08	0.05	9.25
8	129.00	0.04	0.20	0.76	0.16	135.79
Woburn West	121.20	-----	-----	-----	0.15	47.34
Loss at 4	-100.68	-----	-----	-----	-0.12	-----
Atlantic Gelatin	-53.62	-----	-----	-----	-0.06	-----
Total	818.2	-----	-----	-----	1.00	-----

TABLE 6-4
MODEL RESULTS FOR DISSOLVED CHROMIUM FLUX
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Module	Mean Dissolved Chromium Flux from Module (g/hr)	Quick Fraction	Slow Fraction	Longterm Baseflow Fraction	Total Dissolved Flux Fraction	Drainage Area Normalized Flux (g/hr* mi ²)
1	0.31	0.32	0.09	0.59	0.14	0.12
2	0.30	0.00	0.74	0.26	0.14	0.66
3	0.36	0.10	0.35	0.55	0.16	0.14
4	0.00	0.01	0.27	0.72	0.00	0.02
5	0.46	0.10	0.35	0.55	0.21	0.31
6	0.46	0.15	0.41	0.44	0.21	0.23
7	0.33	0.99	0.00	0.01	0.15	0.07
8	0.28	0.70	0.19	0.11	0.13	0.29
Woburn West	0.076	-----	-----	-----	0.03	0.01
Loss at 4	-0.22	-----	-----	-----	-0.10	-----
Atlantic Gelatin	-0.16	-----	-----	-----	-0.07	-----
Total	5.18	-----	-----	-----	1.00	-----

TABLE 6-5
MODEL RESULTS FOR DISSOLVED COPPER FLUX
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Module	Mean Dissolved Copper Flux from Module (g/hr)	Quick Fraction	Slow Fraction	Longterm Baseflow Fraction	Total Dissolved Flux Fraction	Drainage Area Normalized Flux (g/hr* mi ²)
1	0.87	0.15	0.38	0.47	0.09	0.34
2	1.11	0.02	0.36	0.62	0.11	2.47
3	0.93	0.14	0.42	0.44	0.09	0.35
4	0.00	0.02	0.98	0.00	0.00	0.00
5	0.56	0.21	0.63	0.16	0.05	0.37
6	3.23	0.99	0.01	0.00	0.32	1.59
7	2.73	0.78	0.22	0.00	0.27	1.07
8	1.64	0.65	0.09	0.26	0.16	1.72
Woburn West	0.37	-----	-----	-----	0.04	0.16
Loss at 4	-0.68	-----	-----	-----	-0.07	-----
Atlantic Gelatin	-0.54	-----	-----	-----	-0.05	-----
Total	30.68	-----	-----	-----	1.00	-----

TABLE 6-6
MODEL RESULTS FOR DISSOLVED LEAD FLUX
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Module	Mean Dissolved Lead Flux from Module (g/hr)	Quick Fraction	Slow Fraction	Longterm Baseflow Fraction	Total Dissolved Flux Fraction	Drainage Area Normalized Flux (g/hr* mi ²)
1	0.51	0.14	0.31	0.56	0.05	0.20
2	0.00	0.10	0.00	0.90	0.00	0.00
3	1.67	0.02	0.89	0.09	0.15	0.62
4	0.25	0.00	0.07	0.93	0.02	1.49
5	0.18	0.00	0.01	0.99	0.02	0.12
6	0.26	0.02	0.06	0.92	0.02	0.13
7	2.06	0.92	0.08	0.00	0.18	0.46
8	6.60	0.05	0.20	0.75	0.59	6.94
Woburn West	0.14	-----	-----	-----	0.01	0.01
Loss at 4	-0.26	-----	-----	-----	-0.02	-----
Atlantic Gelatin	-0.21	-----	-----	-----	-0.02	-----
Total	11.20	-----	-----	-----	1.00	-----

TABLE 6-7
MODEL RESULTS FOR DISSOLVED MERCURY FLUX
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Module	Mean Dissolved Mercury Flux from Module (g/hr)	Quick Fraction	Slow Fraction	Longterm Baseflow Fraction	Total Dissolved Flux Fraction	Drainage Area Normalized Flux (g/hr* mi ²)
1	0.000	0.00	0.00	0.00	NC ^a	0.00
2	0.000	0.00	0.00	0.00	NC	0.00
3	0.000	0.00	0.00	0.00	NC	0.00
4	0.16	0.00	0.03	0.97	NC	0.93
5	0.0046	0.00	1.00	0.00	NC	0.0031
6	0.0032	0.00	1.00	0.00	NC	0.0016
7	0.011	0.00	1.00	0.00	NC	0.0025
8	0.017	0.00	0.63	0.37	NC	0.017
Woburn West	0.0046	-----	-----	-----	NC	0.01
Loss at 4	-0.048	-----	-----	-----	NC	-----
Atlantic Gelatin	-0.014	-----	-----	-----	NC	-----
Total	0.14	-----	-----	-----	NC	-----

^a NC = Not Computed

TABLE 6-8
MODEL RESULTS FOR SUSPENDED SEDIMENTS
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Module	Mean Suspended Sediment Flux from Module (kg/hr)	Quick Fraction	Slow Fraction	Longterm Baseflow Fraction	Channel Fraction	Total Suspended Sediment Flux Fraction	Drainage Area Normalized Flux (kg/hr*mi ²)	Mean Suspended Concentration from Module (mg/L)
1	11.30	0.51	0.03	0.08	0.39	0.10	4.41	44.91
2	0.54	0.00	0.68	0.29	0.03	0.00	1.20	5.07
3	6.60	0.74	0.07	0.14	0.04	0.06	2.47	21.18
4	0.06	0.00	0.20	0.80	0.00	0.00	0.37	3.97
5	1.11	0.13	0.42	0.40	0.06	0.01	0.73	5.45
6	52.41	0.34	0.00	0.01	0.64	0.45	25.82	305.38
7	10.05	0.76	0.05	0.16	0.02	0.09	2.24	17.50
8	30.10	0.70	0.02	0.01	0.27	0.26	31.69	115
Woburn West	4.64	-----	-----	-----	-----	0.04	0.49	6.1
Loss at 4	-----	-----	-----	-----	-----	-----	-----	-----
Atlantic Gelatin	-----	-----	-----	-----	-----	-----	-----	-----
Total	116	-----	-----	-----	-----	1.00	-----	-----

TABLE 6-9
MODEL RESULTS FOR PARTICULATE ARSENIC FLUX
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Module	Mean Particulate Arsenic Flux from Module (g/hr)	Quick Fraction	Slow Fraction	Longterm Baseflow Fraction	Channel Fraction	Total Particulate Flux Fraction	Drainage Area Normalized Flux (g/hr*mi ²)
1	1.12	0.36	0.00	0.09	0.54	0.03	0.44
2	11.35	0.01	0.79	0.18	0.02	0.34	25.23
3	6.10	0.60	0.06	0.24	0.10	0.18	2.28
4	0.00	0.00	0.99	0.00	0.00	0.00	0.00
5	2.58	0.03	0.07	0.85	0.05	0.08	1.71
6	11.51	0.36	0.00	0.00	0.64	0.35	5.67
7	0.37	0.99	0.00	0.00	0.01	0.01	0.08
8	0.23	0.84	0.00	0.07	0.09	0.01	0.24
Woburn West	0.10	-----	-----	-----	-----	0.00	0.01
Loss at 4	-----	-----	-----	-----	-----	-----	-----
Atlantic Gelatin	-----	-----	-----	-----	-----	-----	-----
Total	33.4	-----	-----	-----	-----	1.00	-----

TABLE 6-10
MODEL RESULTS FOR PARTICULATE IRON FLUX
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Module	Mean Particulate Iron Flux from Module (g/hr)	Quick Fraction	Slow Fraction	Longterm Baseflow Fraction	Channel Fraction	Total Particulate Flux Fraction	Drainage Area Normalized Flux (g/hr*mi ²)
1	664.72	0.27	0.12	0.18	0.42	0.08	259.66
2	527.64	0.00	0.64	0.32	0.03	0.07	1172.54
3	763.43	0.56	0.05	0.29	0.09	0.10	285.93
4	70.34	0.00	0.61	0.39	0.00	0.01	413.75
5	271.19	0.20	0.08	0.66	0.06	0.03	179.60
6	2138.85	0.36	0.00	0.00	0.63	0.27	1053.62
7	2269.22	0.99	0.00	0.00	0.01	0.28	506.52
8	1152.01	0.84	0.00	0.07	0.09	0.14	1212.64
Woburn West	115.97	-----	-----	-----	-----	0.01	12.35
Loss at 4	-----	-----	-----	-----	-----	-----	-----
Atlantic Gelatin	-----	-----	-----	-----	-----	-----	-----
Total	7973	-----	-----	-----	-----	1.00	-----

TABLE 6-11
MODEL RESULTS FOR PARTICULATE CHROMIUM FLUX
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Module	Mean Particulate Chromium Flux from Module (g/hr)	Quick Fraction	Slow Fraction	Longterm Baseflow Fraction	Channel Fraction	Total Particulate Flux Fraction	Drainage Area Normalized Flux (g/hr*mi ²)
1	2.76	0.37	0.02	0.05	0.56	0.07	1.08
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	1.41	0.77	0.04	0.06	0.12	0.03	0.53
4	0.00	0.00	0.99	0.00	0.00	0.00	0.00
5	13.87	0.81	0.00	0.19	0.00	0.34	9.18
6	11.18	0.36	0.00	0.00	0.64	0.28	5.51
7	0.00	0.00	0.00	0.96	0.04	0.00	0.00
8	11.16	0.61	0.03	0.24	0.11	0.28	11.75
Woburn West	0.14	-----	-----	-----	-----	0.00	0.01
Loss at 4	-----	-----	-----	-----	-----	-----	-----
Atlantic Gelatin	-----	-----	-----	-----	-----	-----	-----
Total	40.5	-----	-----	-----	-----	1.00	-----

TABLE 6-12
MODEL RESULTS FOR PARTICULATE COPPER FLUX
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Module	Mean Particulate Copper Flux from Module (g/hr)	Quick Fraction	Slow Fraction	Longterm Baseflow Fraction	Channel Fraction	Total Particulate Flux Fraction	Drainage Area Normalized Flux (g/hr* mi ²)
1	4.80	0.36	0.03	0.06	0.55	0.06	0.06
2	0.04	0.00	0.01	0.95	0.04	0.00	0.00
3	2.98	0.79	0.02	0.06	0.13	0.03	0.03
4	0.00	1.00	0.00	0.00	0.00	0.00	0.00
5	14.05	0.88	0.00	0.01	0.11	0.16	0.16
6	31.78	0.36	0.00	0.01	0.63	0.37	0.37
7	22.35	0.98	0.00	0.00	0.01	0.26	0.26
8	9.97	0.68	0.04	0.17	0.11	0.12	0.12
Woburn West	0.37	-----	-----	-----	-----	0.00	0.00
Loss at 4	-----	-----	-----	-----	-----	-----	-----
Atlantic Gelatin	-----	-----	-----	-----	-----	-----	-----
Total	86.34	-----	-----	-----	-----	1.00	-----

TABLE 6-13
MODEL RESULTS FOR PARTICULATE LEAD FLUX
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Module	Mean Particulate Lead Flux from Module (g/hr)	Quick Fraction	Slow Fraction	Longterm Baseflow Fraction	Channel Fraction	Total Particulate Flux Fraction	Drainage Area Normalized Flux (g/hr* mi ²)
1	4.08	0.34	0.03	0.12	0.52	0.06	1.59
2	0.00	0.00	0.00	0.95	0.04	0.00	0.00
3	1.15	0.72	0.02	0.15	0.12	0.02	0.43
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	7.69	0.89	0.00	0.11	0.00	0.11	5.09
6	52.67	0.35	0.00	0.02	0.62	0.73	25.95
7	0.00	0.00	0.99	0.00	0.01	0.00	0.00
8	6.00	0.01	0.11	0.71	0.18	0.08	6.32
Woburn West	0.14	-----	-----	-----	-----	0.00	0.01
Loss at 4	-----	-----	-----	-----	-----	-----	-----
Atlantic Gelatin	-----	-----	-----	-----	-----	-----	-----
Total	71.73	-----	-----	-----	-----	1.00	-----

TABLE 6-14
MODEL RESULTS FOR PARTICULATE MERCURY FLUX
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Module	Mean Particulate Mercury Flux from Module (g/hr)	Quick Fraction	Slow Fraction	Longterm Baseflow Fraction	Channel Fraction	Total Particulate Flux Fraction	Drainage Area Normalized Flux (g/hr*mi ²)
1	0.00	0.00	0.00	0.00	0.00	NC ^a	0.00
2	0.00	0.00	0.00	0.00	0.00	NC	0.00
3	0.00	0.00	0.00	0.00	0.00	NC	0.00
4	0.012	0.00	0.01	0.99	0.00	NC	0.074
5	0.0018	0.78	0.12	0.00	0.10	NC	0.0012
6	0.81	0.36	0.00	0.00	0.64	NC	0.40
7	0.0037	0.99	0.00	0.00	0.01	NC	0.00083
8	9.65E-05	0.00	0.00	0.88	0.12	NC	0.00010
Woburn West	0.005	-----	-----	-----	-----	NC	0.0005
Loss at 4	-----	-----	-----	-----	-----	NC	-----
Atlantic Gelatin	-----	-----	-----	-----	-----	NC	-----
Total	0.83	-----	-----	-----	-----	NC	-----

^a NC = Not Computed

TABLE 7-1
ARSENIC CONCENTRATIONS ASSIGNED TO FLOW AND PARTICULATE COMPONENTS
FOR THE FIVE SCENARIOS EVALUATED
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Metal Component	Existing Conditions	Optimum Cofferdam	Baseflow Cofferdam	50&75 Cofferdam	Reactive Wall
Module 1					
Quick Dissolved As, µg/L	0.3	0.3	0.3	0.3	0.3
Slow Dissolved As, µg/L	2.5	2.5	2.5	2.5	2.5
LTBF Dissolved As, µg/L	1.3	1.3	1.3	1.3	1.3
Quick Particulate As, mg/kg	190	190	190	190	190
Slow Particulate As, mg/kg	9	9	9	9	9
LTBF Particulate As, mg/kg	130	32.5	32.5	32.5	130
Module 2					
Quick Dissolved As, µg/L	90	0.3	21	90	90
Slow Dissolved As, µg/L	20.5	2.5	20.5	20.5	2.5
LTBF Dissolved As, µg/L	21	1.3	21	21	1.3
Quick Particulate As, mg/kg	95000	190	13000	47500	95000
Slow Particulate As, mg/kg	25000	9	13000	12500	9
LTBF Particulate As, mg/kg	13000	130	13000	3250	130

TABLE 7-2
ARSENIC FLUX AND CONCENTRATION FOR EXISTING CONDITIONS FOR
THE ENTIRE TTNUS PERIOD OF RECORD
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Arsenic Flux, g/hr			Arsenic Concentration,			Arsenic Flux,g/hr per sq.mile		
	Total	Dissolved	Particulate	Total, µg/L	Dissolved, µg/L	Particulate, mg/kg	Total	Dissolved	Particulate
1	1.5	0.4	1.2	2.6	1.4	127	0.6	0.15	0.45
2	15.4	2.9	12.6	35.4	7.2	5610	5.1	0.95	4.17
4	9.2	1.9	7.3	34.6	7.2	5460	2.9	0.59	2.31
5	19.3	4.1	15.2	26.7	7.0	3850	2.6	0.56	2.06
6	31.2	4.3	26.9	22.4	5.2	2830	3.3	0.46	2.86
7	28.8	5.0	23.8	17.9	4.5	1830	2.1	0.36	1.72
8	29.5	7.3	22.2	6.7	2.5	680	1.2	0.30	0.92
3	8.5	2.2	6.3	19.0	8.0	1440	3.2	0.84	2.34
9	1.0	0.9	0.1	1.3	1.2	22	0.1	0.10	0.01

Note: Station 9 corresponds to the Woburn West Sub-basin

TABLE 7-3
ARSENIC FLUX AND CONCENTRATION FOR "OPTIMUM COFFERDAM" SCENARIO
FOR THE ENTIRE TTNUS PERIOD OF RECORD
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Arsenic Flux, g/hr			Arsenic Concentration			Decrease from Existing Conditions (%)		Arsenic Flux, g/hr per sq. mile
	Total	Dissolved	Particulate	Total, µg/L	Dissolved, µg/L	Particulate, mg/kg	Flux	Concentration	
1	1.5	0.4	1.2	2.6	1.4	130	0%	0%	0.45
2	1.6	0.6	1.0	2.2	1.5	60	89%	94%	0.34
4	0.8	0.4	0.4	2.2	1.6	53	91%	94%	0.12
5	11.1	2.6	8.5	13.3	4.7	1550	42%	50%	1.15
6	23.2	2.9	20.4	12.5	3.5	1140	25%	44%	2.17
7	21.4	3.5	17.8	9.3	3.0	740	26%	48%	1.28
8	22.4	6.0	16.4	4.4	2.1	320	24%	35%	0.68
3	8.5	2.2	6.3	19.0	8.0	1440	0%	0%	2.34
9	1.0	0.9	0.1	1.3	1.2	22	0%	0%	0.01

Note: Station 9 corresponds to the Woburn West Sub-basin

TABLE 7-4
ARSENIC FLUX AND CONCENTRATION FOR "BASEFLOW COFFERDAM" SCENARIO
FOR THE ENTIRE TTNUS PERIOD OF RECORD
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Arsenic Flux, g/hr			Arsenic Concentration			Decrease from Existing Conditions (%)		Arsenic Flux, g/hr per sq. mile
	Total	Dissolved	Particulate	Total, µg/L	Dissolved, µg/L	Particulate, mg/kg	Flux	Concentration	
1	1.5	0.4	1.2	2.6	1.4	130	0%	0%	0.6
2	10.6	2.6	8.0	25.3	6.8	3660	31%	28%	3.5
4	6.4	1.7	4.7	24.4	6.7	3500	31%	29%	2.0
5	16.6	4.0	12.6	22.5	6.8	3020	14%	16%	2.3
6	28.5	4.1	24.4	19.3	5.0	2210	8%	14%	3.0
7	26.4	4.8	21.6	15.1	4.4	1420	8%	16%	1.9
8	27.2	7.2	20.0	6.0	2.5	550	8%	11%	1.1
3	8.5	2.2	6.3	19.0	8.0	1440	0%	0%	3.2
9	1.0	0.9	0.1	1.3	1.2	22	0%	0%	0.1

Note: Station 9 corresponds to the Woburn West Sub-basin

TABLE 7-5
ARSENIC FLUX AND CONCENTRATION FOR "50&75 COFFERDAM" SCENARIO
FOR THE ENTIRE TTNUS PERIOD OF RECORD
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Arsenic Flux, g/hr			Arsenic Concentration			Decrease from Existing Conditions (%)		Arsenic Flux, g/hr per sq. mile
	Total	Dissolved	Particulate	Total, µg/L	Dissolved, µg/L	Particulate, mg/kg	Flux	Concentration	
1	1.5	0.4	1.2	2.6	1.4	130	0%	0%	0.6
2	9.1	2.9	6.2	19.5	7.2	2410	41%	45%	3.0
4	5.3	1.9	3.5	19.3	7.2	2370	42%	44%	1.7
5	15.5	4.1	11.4	20.4	7.0	2540	19%	24%	2.1
6	27.5	4.3	23.2	17.7	5.2	1880	12%	21%	2.9
7	25.4	5.0	20.4	13.9	4.5	1220	12%	22%	1.8
8	26.2	7.3	18.9	5.7	2.5	480	11%	16%	1.1
3	8.5	2.2	6.3	19.0	8.0	1440	0%	0%	3.2
9	1.0	0.9	0.1	1.3	1.2	22	0%	0%	0.1

Note: Station 9 corresponds to the Woburn West Sub-basin

TABLE 7-6
ARSENIC FLUX AND CONCENTRATION FOR "REACTIVE WALL" SCENARIO
FOR THE ENTIRE TTNUS PERIOD OF RECORD
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Arsenic Flux, g/hr			Arsenic Concentration			Decrease from Existing Conditions (%)		Arsenic Flux, g/hr per sq. mile
	Total	Dissolved	Particulate	Total, µg/L	Dissolved, µg/L	Particulate, mg/kg	Flux	Concentration	
1	1.5	0.4	1.2	2.6	1.4	130	0%	0%	0.6
2	2.1	0.9	1.2	3.0	2.1	110	86%	91%	0.7
4	1.1	0.6	0.5	3.1	2.2	110	88%	91%	0.3
5	11.4	2.8	8.6	13.7	4.9	1570	41%	49%	1.6
6	23.5	3.0	20.5	12.8	3.6	1160	25%	43%	2.5
7	21.6	3.7	17.9	9.5	3.2	750	25%	47%	1.6
8	22.7	6.2	16.4	4.5	2.2	320	23%	34%	0.9
3	8.5	2.2	6.3	19.0	8.0	1440	0%	0%	3.2
9	1.0	0.9	0.1	1.3	1.2	22	0%	0%	0.1

Note: Station 9 corresponds to the Woburn West Sub-basin

TABLE 7-7
TOTAL ARSENIC FLUX AND CONCENTRATION FOR EXISTING
CONDITIONS FOR THE MAY 2002 STORM PERIOD
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Flux, g/hr	Concentration, µg/L	Flux,g/hr per sq.mile
1	7.5	4.5	2.9
2	77.6	41.6	25.8
4	33.9	37.7	10.7
5	68.3	20.1	9.3
6	158.4	31.1	16.9
7	149.1	17.9	10.8
8	218.4	18.3	9.0
3	31.1	20.6	11.7
9	1.2	1.3	0.1

Note: Station 9 corresponds to the Woburn West Sub-basin

TABLE 7-8
TOTAL ARSENIC FLUX AND CONCENTRATION FOR “OPTIMUM COFFERDAM”
SCENARIO FOR THE MAY 2002 STORM PERIOD
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Flux, g/hr	Concentration, µg/L	Flux,g/hr per sq.mile	Flux, % removed	Concentration, % decrease
1	7.1	4.1	2.8	6%	8%
2	7.9	3.4	2.6	90%	92%
4	3.4	3.1	1.1	90%	92%
5	40.4	11.0	5.5	41%	45%
6	130.1	23.6	13.9	18%	24%
7	125.0	13.3	9.0	16%	26%
8	178.4	14.1	7.4	18%	23%
3	31.1	20.6	11.7	0%	0%
9	1.2	1.3	0.1	0%	0%

Note: Station 9 corresponds to the Woburn West Sub-basin

TABLE 7-9
TOTAL ARSENIC FLUX AND CONCENTRATION FOR "BASEFLOW COFFERDAM"
SCENARIO FOR THE MAY 2002 STORM PERIOD
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Flux, g/hr	Concentration, µg/L	Flux,g/hr per sq.mile	Flux, % removed	Concentration, % decrease
1	7.1	4.1	2.8	6%	8%
2	50.3	27.8	16.7	35%	33%
4	22.5	25.4	7.1	34%	33%
5	58.1	17.0	7.9	15%	15%
6	148.0	28.5	15.8	7%	8%
7	140.6	16.3	10.1	6%	9%
8	204.2	16.9	8.4	7%	8%
3	31.1	20.6	11.7	0%	0%
9	1.2	1.3	0.1	0%	0%

Note: Station 9 corresponds to the Woburn West Sub-basin

TABLE 7-10
TOTAL ARSENIC FLUX AND CONCENTRATION FOR "50 & 75 COFFERDAM"
SCENARIO FOR THE MAY 2002 STORM PERIOD
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Flux, g/hr	Concentration, µg/L	Flux,g/hr per sq.mile	Flux, % removed	Concentration, % decrease
1	7.1	4.1	2.8	6%	8%
2	46.3	24.1	15.4	40%	42%
4	20.4	22.0	6.4	40%	42%
5	56.1	15.9	7.6	18%	21%
6	146.0	27.7	15.6	8%	11%
7	138.9	15.8	10.0	7%	12%
8	199.0	16.3	8.2	9%	11%
3	31.1	20.6	11.7	0%	0%
9	1.2	1.3	0.1	0%	0%

Note: Station 9 corresponds to the Woburn West Sub-basin

TABLE 7-11
TOTAL ARSENIC FLUX AND CONCENTRATION FOR "REACTIVE WALL" SCENARIO
FOR THE MAY 2002 STORM PERIOD
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Flux, g/hr	Concentration, µg/L	Flux,g/hr per sq.mile	Flux, % removed	Concentration, % decrease
1	7.5	4.5	2.9	0%	0%
2	10.0	4.4	3.3	87%	89%
4	4.4	4.1	1.4	87%	89%
5	41.4	11.2	5.6	39%	44%
6	131.1	23.8	14.0	17%	24%
7	125.9	13.4	9.1	16%	25%
8	179.5	14.2	7.4	18%	22%
3	31.1	20.6	11.7	0%	0%
9	1.2	1.3	0.1	0%	0%

Note: Station 9 corresponds to the Woburn West Sub-basin

TABLE 8-1
TOTAL ARSENIC CONCENTRATION AND TOTAL ARSENIC FLUX SIMULATED FOR EXISTING
CONDITIONS AND SCENARIOS FOR THE TTNUS PERIOD OF RECORD
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Concentration, µg/L					Flux, g/hr				
	Existing Conditions	50&75 Cofferdam	Basflow Cofferdam	Optimum Cofferdam	Reactive Wall	Existing Conditions	50&75 Cofferdam	Basflow Cofferdam	Optimum Cofferdam	Reactive Wall
1	2.6	2.6	2.6	2.6	2.6	1.5	1.5	1.5	1.5	1.5
2	35.4	19.5	25.3	2.2	3.0	15.4	9.1	10.6	1.6	2.1
4	34.6	19.3	24.4	2.2	3.1	9.2	5.3	6.4	0.8	1.1
5	26.7	20.4	22.5	13.3	13.7	19.3	15.5	16.6	11.1	11.4
6	22.4	17.7	19.3	12.5	12.8	31.2	27.5	28.5	23.2	23.5
7	17.9	13.9	15.1	9.3	9.5	28.8	25.4	26.4	21.4	21.6
8	6.7	5.7	6.0	4.4	4.5	29.5	26.2	27.2	22.4	22.7
3	19.0	19.0	19.0	19.0	19.0	8.5	8.5	8.5	8.5	8.5
9	1.3	1.3	1.3	1.3	1.3	1.0	1.0	1.0	1.0	1.0

Note: Station 9 corresponds to the Woburn West Sub-basin

TABLE 8-2
PERCENT SIMULATED REDUCTIONS IN TOTAL ARSENIC CONCENTRATION AND FLUX FROM EXISTING
CONDITIONS FOR THE SCENARIOS EVALUATED FOR THE TTNUS PERIOD OF RECORD
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Concentration, µg/L				Flux, g/hr			
	50&75 Cofferdam	Basflow Cofferdam	Optimum Cofferdam	Reactive Wall	50&75 Cofferdam	Basflow Cofferdam	Optimum Cofferdam	Reactive Wall
1	0%	0%	0%	0%	0%	0%	0%	0%
2	45%	28%	94%	91%	41%	31%	89%	86%
4	44%	29%	94%	91%	42%	31%	91%	88%
5	24%	16%	50%	49%	19%	14%	42%	41%
6	21%	14%	44%	43%	12%	8%	25%	25%
7	22%	16%	48%	47%	12%	8%	26%	25%
8	16%	11%	35%	34%	11%	8%	24%	23%
3	0%	0%	0%	0%	0%	0%	0%	0%
9	0%	0%	0%	0%	0%	0%	0%	0%

Note: Station 9 corresponds to the Woburn West Sub-basin

TABLE 8-3
TOTAL ARSENIC CONCENTRATION AND TOTAL ARSENIC FLUX SIMULATED FOR EXISTING CONDITIONS
AND SCENARIOS FOR THE MAY 2002 STORM
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Concentration, µg/L					Flux, g/hr				
	Existing Conditions	50&75 Cofferdam	Basflow Cofferdam	Optimum Cofferdam	Reactive Wall	Existing Conditions	50&75 Cofferdam	Basflow Cofferdam	Optimum Cofferdam	Reactive Wall
1	4.5	4.1	4.1	4.1	4.5	7.5	7.1	7.1	7.1	7.5
2	41.6	24.1	27.8	3.4	4.4	77.6	46.3	50.3	7.9	10.0
4	37.7	22.0	25.4	3.1	4.1	33.9	20.4	22.5	3.4	4.4
5	20.1	15.9	17.0	11.0	11.2	68.3	56.1	58.1	40.4	41.4
6	31.1	27.7	28.5	23.6	23.8	158.4	146.0	148.0	130.1	131.1
7	17.9	15.8	16.3	13.3	13.4	149.1	138.9	140.6	125.0	125.9
8	18.3	16.3	16.9	14.1	14.2	218.4	199.0	204.2	178.4	179.5
3	20.6	20.6	20.6	20.6	20.6	31.1	31.1	31.1	31.1	31.1
9	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.2

Note: Station 9 corresponds to the Woburn West Sub-basin

TABLE 8-4
PERCENT SIMULATED REDUCTIONS IN TOTAL ARSENIC CONCENTRATION AND FLUX FROM EXISTING
CONDITIONS FOR THE SCENARIOS EVALUATED FOR THE MAY 2002 STORM
DRAFT TECHNICAL MEMORANDUM
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Concentration, µg/L				Flux, g/hr			
	50&75 Cofferdam	Basflow Cofferdam	Optimum Cofferdam	Reactive Wall	50&75 Cofferdam	Basflow Cofferdam	Optimum Cofferdam	Reactive Wall
1	8%	8%	8%	0%	6%	6%	6%	0%
2	42%	33%	92%	89%	40%	35%	90%	87%
4	42%	33%	92%	89%	40%	34%	90%	87%
5	21%	15%	45%	44%	18%	15%	41%	39%
6	11%	8%	24%	24%	8%	7%	18%	17%
7	12%	9%	26%	25%	7%	6%	16%	16%
8	11%	8%	23%	22%	9%	7%	18%	18%
3	0%	0%	0%	0%	0%	0%	0%	0%
9	0%	0%	0%	0%	0%	0%	0%	0%

Note: Station 9 corresponds to the Woburn West Sub-basin